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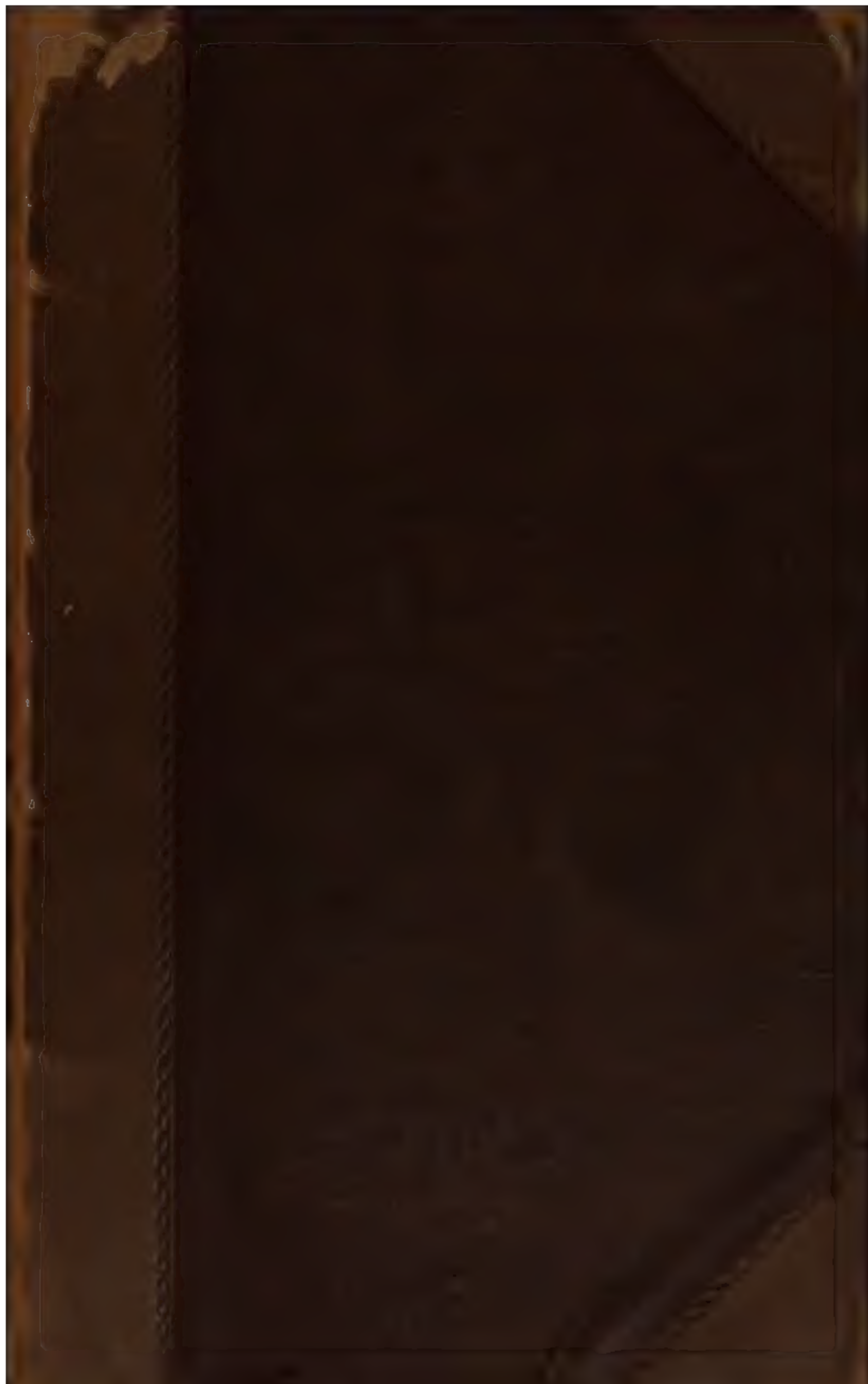
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**GENERAL VIEW**

**OF THE**

**AGRICULTURE**

**OF THE**

**COUNTY OF LINCOLN.**

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**GENERAL VIEW**  
**OF THE**  
**AGRICULTURE**  
**OF THE**  
**COUNTY OF LINCOLN;**

**DRAWN UP FOR THE**  
**CONSIDERATION OF THE BOARD OF AGRICULTURE**  
**AND INTERNAL IMPROVEMENT.**

---

**BY THE**  
**SECRETARY TO THE BOARD.**

---

**LONDON:**

**PRINTED BY W. BULMER AND CO.**  
**FOR G. NICOL, PALL-MALL, BOOKSELLER TO HIS**  
**MAJESTY, AND THE BOARD OF AGRICULTURE; AND SOLD**  
**BY G. G. AND J. ROBINSON, PATERNOSTER-ROW;**  
**J. SEWELL, CORNHILL; CADELL AND DAVIES,**  
**STRAND; W. CREECH, EDINBURGH; AND**  
**JOHN ARCHER, DUBLIN.**

**M,DCC,XCIX.**





## INTRODUCTION.

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**W**HEN the Board of Agriculture first undertook the Herculean labour of surveying the whole kingdom, there were many persons who, for want of better information, entertained suspicions of which they themselves had but an obscure idea, of I know not what unexplained views, which were the cause of those inquiries; but the publication of the Reports tended strongly to remove them, and to shew, that if the information thus collected was not of the highest importance in all cases, that it was at least perfectly innocent, and carried nothing of *taxation* in the result.

I ought with great eagerness to seize this and every opportunity of declaring, that it was not possible to meet with a more liberal spirit of communication than I experienced in the County of Lincoln; not confined to the nobility and gentry of fortune, from whom it might be expected of course, but from every class of the people: the clergy, farmers, graziers, and equally the inhabitants of towns; all were desirous to contribute whatever information was in their power; the numerous breeders of sheep and cattle were emulous in shewing their stock without reserve or mystery, and explaining their motives and reasons for adopting or adhering to this or that breed, with an openness and candour which will for

to give me a very right idea of the merit of that report & claim. But the liberality of these gentlemen laid a considerable responsibility on me; for if with such advantages, and having nothing to complain of on their parts, I fail of giving a satisfactory Paper, I can expect to receive only a well founded condemnation. And here I have but two pleas, that can in the smallest degree extenuate such a failure: first, I was restricted in time, as my commission was only for seven weeks; my reception was, however, so flattering in every part of the county, that I extended it, without authority, to twelve; and would have remained longer there, but the usual time of the meetings of the Board prevented it. I had scarcely time to give a look at my own farm before I was obliged to attend in London. The fact is, that Lincolnshire is so very extensive, equalling the contents of two or three middling sized counties, that even twelve weeks I found too short a period for viewing every interesting part of it with sufficient attention.

My second excuse is of a much more melancholy nature, and entirely personal. I made the Survey under a depression of mind resulting from the heaviest calamity to which the human heart is liable; a calamity in its nature irretrievable, that cuts off the prospects of hope here, and leaves the lacerated soul no balm but what it can derive from existence beyond the grave. In such a state of mind, to act as if present evils were forgotten, to give an undivided attention to business, to prosecute inquiries with keenness, and

even ardour, and to dress one's face in smiles, that the anguish at heart might not cool or turn aside the readiness of communication I every where found ; this, though certainly necessary, is not an easy task, and will ever be an impracticable one without the consolation that flows from a Christian resignation to the Divine Will. Under this deep affliction I exerted myself as much as I could to restrain the natural tendency of thoughts that would have led me far from the pursuits in hand. I will presume only to add, that under such circumstances I have done my best.

I cannot conclude these observations, without remarking the extreme importance of examining the several provinces of the kingdom repeatedly, till all the singularities of their state, and practical husbandry, are well ascertained. I by no means pretend to have exhausted Lincolnshire; others may, without doubt, make their harvest after mine; but such repeated examinations, if carefully made, must of necessity render the whole territory well understood; and at the same time all those practices, at present local, but extensively applicable, so satisfactorily explained as to insure their gradual adoption, and consequently the carrying national improvement to its highest pitch; an object of such consequence as fully to justify the Board of Agriculture in their solicitude to procure the best County Reports that circumstances will permit; and as they are published, Parliament will without doubt see the various and extensive utility that may be the

result of these labours of the Board, which can want nothing but such a support as shall enable that most respectable body, to choose agents capable of the parts assigned them, and allow them ample time for attaining such perfection as may do credit to their employers. When the whole kingdom has, by such exertions, been gone over a second time, there will be such a mass of information collected as no country can boast ; and it will then be in the power of the Board to draw such general conclusions from the whole, as shall not fail of promoting the knowledge of practical Agriculture in a very high degree, and of fixing its rules upon the only sure basis, that of EXPERIMENT, deduced, not from general observations, but the trials of individuals in every part of the kingdom. Such a result will fully justify the idea of surveying the kingdom, and convince every reflecting man, that if the expenditure of a few thousand pounds can thus concentrate the practice of 700 miles of territory, the money is well and laudably employed.

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# AGRICULTURAL SURVEY

OF

# LINCOLNSHIRE.

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## CHAPTER I.

### GEOGRAPHICAL STATE.

---

#### SECT. I.—*Extent.*

**T**HERE is great difficulty in ascertaining, with any tolerable degree of accuracy, the extent of a county, when the maps of it are suspected to be inaccurate. I have no better source of information, than that of the last Survey by Mr. Armstrong; having employed a map engraver, on whom I could depend, for measuring that Map of the County of Lincoln, the result is,

	<i>Square Miles.</i>
That the Wolds, as marked in the map annexed to this Report, contain - - -	367
The Heath north and south of Lincoln -	185
The Lowland tracts - - -	1214
The remainder, or miscellaneous tract -	1122
	<hr/> 2888

				<i>Acres.</i>
The Wolds	-	-	-	234,880
The Heath	-	-	-	118,400
Lowland	-	-	-	776,960
Miscellaneous	-	-	-	718,080
Total				<hr/> 1,848,320 <hr/>

**SECT. 2.—*Divisions, and Face of the Country.***

THE discriminating features of the county of Lincoln are strongly marked by nature. Contiguous to the sea, in the southern part, there spreads a great extent of low land, much of which was once marsh and fen ; but now become, by the gradual exertions of above 150 years, one of the richest tracts in the kingdom ; these great works are not yet finished, but from the noble spirit which has animated this county, promise speedily to be effected. It is a region of fertility without beauty, in a climate not salubrious to the human constitution : advancing north on the sea coast, this rich tract becomes narrow, but reaches to the Humber, and there contracts to a mere edging of marsh land, cut off by the cliffs which rise on the Trent mouth, from a nearly similar tract, which fills all the part of the county on the left side of that great river. The heaths north and south of Lincoln and the Wolds, as marked in the Map, are calcareous hills, which from their brows command many fine views over the lower regions : the rest of the county is not equally discriminated either by fertility or elevation, and, except certain spots more favoured by nature than the rest, do not exhibit a country that classes among the more beautiful features of the kingdom. Upon the whole, however, it is a better country than general ideas have permitted some to esteem it.

I viewed specimens, which ought to retrieve the county

from the condemnations I have heard. About Belton, there are fine views from the tower on Belmont ; Lynn, and the Norfolk cliffs are visible, Nottingham castle, the Vale of Belvoir, &c. And in going by the Clift-towns to Lincoln, there are many fine views. From Fullbeck to Leadenham, especially at the latter place, there is a most rich prospect over the Vale of the Trent, to the distant lands that bound it. These views over an extensive vale are striking, and of the same features, are those from the Cliff road to the north of Lincoln, to Kirton, where is a great view both east and west to the Wolds, and also to Nottinghamshire. Near Gainsborough there are very agreeable scenes ; from the plantation of H. Dalton, Esq. at Knaith, and from the Chateau battery of Mr. Hutton, at Burton, the view of the windings of the Trent, and the rich level plain of meadow, all alive with great herds of cattle, bounded by distant hills of cultivation, are features of an agreeable country. But still more beautiful is that about Trent Fall ; from Sir John Sheffield's hanging wood, and the Rev. Mr. Sheffield's ornamented walk, following the Cliff to Alkborough, where Mr. Goulton's beautiful grounds command a great view of the three rivers : as the soil is dry, the woods lofty, and the country various, this must be esteemed a noble scenery, and a perfect contrast to what Lincolnshire is often represented by those who have seen only the parts of it, that are very different. The whole line of the Humber hence to Grimsby, when viewed from the higher Wolds, presents an object that must be interesting to all. This, with the very great plantations of Lord Yarborough, are seen to much advantage from that most beautiful building, the mausoleum at Brocklesby.

There is a considerable inequality of surface in the Wolds about Louth, and particularly at Tathwell, &c.

and being well ornamented with wood, parts of it are pleasing.

One of the finest parts of Lincolnshire I have seen, and it would be reckoned fine in any county, is from the hill above Dalby to Spilsby ; from that hill the view of rich inclosures, spreading over a varied vale, and the opposite hill, with Partney church and village, rising on a knoll amidst some wood, with the grounds about Mr. Bourne's, altogether form a very pleasing scenery.

From the Welton mill near Spilsby, the view is extensive, the Norfolk coast is commanded over a reach of low country with Boston steeple, bounded by the sea.

Some very beautiful scenes are to be observed at Thurgunby, Stainton, &c. The former is the ancient seat of the Willoughbys (Lord Middleton) ; the house is situated high, and commands the vale to Swinop ; there is some old timber about it, which gives a feature rare upon the Wolds. The ground behind varies finely, falling to a narrow vale, through which runs a trout stream, capable of giving any thing that water can confer ; the surrounding hills are bold, and if planted with judgment, would render this one of the most beautiful spots I have seen in Lincolnshire. Indeed it is so at present, while left by the owner in the hands and neglect of a tenant. Here are some of the largest alders I have any where remarked. What a scenery would the lake at Croxby be, if surrounded by plantations, the pond tail dug out (rich manure), and the water carried, where it has been, to the grove of timber !

There are some delicious hills and vales at Stainton ; Mr. Angerstein, I am told, intends planting two or three hundred acres ; he will make it a region of beauty, and a place that would figure in the finest counties of England ; there is a boundless command of water, the springs being exuberant.

SECT. 3.—*Climate.*

It is a curious circumstance, that immediately after the Witham drainage, the climate of the lowland district was rendered more aguish than before; but upon the drains being completed, this effect disappeared, and it became much healthier than it had ever been. Still, however, the people are subject to inveterate agues occasionally. The north-east winds, in the spring, also are more sharp and prevalent than further inland.

*Minute of the Weather at Knaith, near Gainsborough.*  
in 1797.

January,	rain on	-	-	8 days.
(on one of them a little snow)				
February,	rain on	-	-	1
March,	rain on	-	-	8
April,	rain on	-	-	17

The rains from the beginning of January to this time had been very slight, on some days of not many minutes continuance; on the whole a very small quantity fell. The Trent was very low, the water at dry summer marks in March.

May,	rain on	-	-	18 days.
June,	rain on	-	-	25
July,	rain on	-	-	15
Aug. to 27 incl.	rain on	-	-	18

From the 1st of May to the 18th of June, inclusive, rain  $7\frac{60}{100}$  inches.

From the 18th of June to the 27th of August, rain  $4\frac{1}{100}$  inches.

In the very fine mild weather of the early spring, the thermometer never observed above 50.

Greatest height of thermometer, July 27,  $81\frac{1}{2}$

Least height of thermometer, before sunrise, Jan. 16, 25½.

Much of the rain in summer from the northern and eastern quarters.

There is an extraordinary circumstance in the north-west corner of the county. Agues were formerly commonly known upon the Trent and Humber side; at present they are rare; and nothing has been effected on the Lincoln side of the Humber, to which it can be attributed; but there was a coincidence of time with the draining Wallin fen in Yorkshire, and this effect: that country is now full of new-built houses, and highly improved, and must have occasioned this remarkable change.

About Barton, &c. the east wind in the months of March, April, and May, are very cold and cutting; and all along on the low land by the Humber, snow remains very little. At the equinoxes, especially the autumnal, very high westerly winds prevail; the trees do not turn their heads from the sea, but from those west winds.

Upon the whole there is nothing very peculiar in the climate of this county, or at least nothing noted which has come to my knowledge, though it was an inquiry I every where made. The most singular circumstance is, the very general improvement which has taken place in it gradually, by the vast tracts which have been drained and cultivated, a work still going on, and which has rendered a district that extends many miles, incomparably more healthy than before. In proportion, also, as the country in general becomes more and better cultivated, and fuller of industrious population, the same effect must have, in other districts, taken place, though not in an equal degree. The bleak wolds and heaths being almost all inclosed and planted within twenty or thirty years, is a circumstance that has probably had a similar effect.



\_\_\_\_\_

3

1

11

1

1

16

11

1

1

1

1

1

1

**Explanation of the Colours**

*Lincoln Heath* ..... *Green*  
*Wolds* ..... *Blue*  
*Rick Track* ..... *Yellow*  
*Miscellaneous* ..... *Red*

NO.  
RUTLAND

30'

Degree West

50'

40'

3

Gravel 352, 54 paces

SECT. 4.—*Soil.*

IN attempting to give a general idea of the soil of this very extensive county, I must premise, that no one can be named which contains a greater variety; for it may truly be said to include all the sorts of land that are to be found in the whole kingdom. There are few exceptions, but granite, schistus, the white surface of the Hertfordshire chalks, and the pure blowing sand of Suffolk. If soils are divided as they may be, relative to practice, into, 1. clay, 2. sand, 3. loam, 4. chalk, 5. peat, they are all to be found in large districts, under many variations. Harsh, churlish, tenacious, infertile clays. Sands poor and of admirable fertility. Loams of every possible description, and some that rival the best in the kingdom. The calcareous class in chalk, limestone, and gypsum. Peat of many sorts, from a wretched thin covering of bad sands, to the deep treasures of ponderous bog.

On entering the county from Wisbeach to Long Sutton, every one must be struck with the richness of the soil. It is one of the finest tracts I have seen—a brown dark loam of admirable texture. The district continues, with some variation of peat near Spalding, quite to the sea at Freestone, beyond Boston.

In boring at the bottom of a well at Boston twenty-seven feet deep, they came very soon to a stratum of blue marl, colour of Westmoreland slate, which continued for upwards of one hundred and fifty yards, with exceptions only of a few inches, amounting to not more, in the whole, than three feet.

Mr. Cartwright found at Wintringham, and also at Great Cotes near Grimsby, the warp land equally calcareous. Proportion calcar.  $106\frac{1}{2}$  parts to  $110\frac{1}{2}$ . In the hilly parts at Wintringham, limestone 206 calcar. to 11 of soil.

The Great Cotes  $38\frac{1}{2}$  calcar. to  $201\frac{1}{2}$  of soil, and also  $40\frac{1}{2}$  to  $199\frac{1}{2}$ . Query if this soil does not extend all along the low land on the coast?

At Scot Willoughby, Osbornby, and the neighbourhood of Folkingham, there are three soils; strong clay, on a mortary bottom, stiff and churlish, difficult to work. A *creech*, loam on stone, dirty in winter; call it watery creech, because wet, lames sheep by feeding turnips on it. Rich hazel loam.

At Kirkby near Sleaford there is a tract of beautiful pasture land, dry enough for sheep, and rich enough for bullocks; Mr. Fisher's eligible farm is a fine specimen of it.

I was particularly pleased with the tract of reddish sand (by the way that colour is always a good sign) at Belton, and which holds for several miles along the vale to Normanton, &c; it is very deep at Belton, and gives vast crops of oats; fine turnips, and large trees, beech, lime, ash, &c. Most profitable land for the alternate husbandry of grass and arable, as managed in Lord Brownlow's park.

The reddish sands upon the heath, open field, arable at Blankney are excellent for barley; and extend too far into tracts under rabbits—not equally good, but too good for that application.

The heath new inclosures north of Lincoln, to and about Hackthorne, are on limestone.

In a ride with Mr. Harrison from Norton Place, going by the Roman road, and returning by the Cliff, I had an opportunity of seeing, at a distance, a great tract of country, from the Wolds on one side, to the Nottinghamshire rising grounds on the other, and of having the nature of the country explained to me. The variations of soil are nearly all longitudinal in the direction of north and south. The Heath, now all inclosed, is a tract of high country, a sort of back bone to the whole, in which the soil is a good sandy loam, but with clay enough in it to

be slippery with wet, and tenacious under bad management ; but excellent turnip and barley land, on a bed of limestone, at various depths, from six inches to several feet, commonly nine inches to eighteen. This hill slopes sharply to the west ; the declivity of the same nature, but generally good ; and this extends some distance in the flat vale, for the first line of villages (built also as the soil lies, in a longitudinal direction north and south) ; the soil is rich loam, containing much pasturage. Beyond this tract there is a line of strong wet clay, harsh, difficult, unprofitable land, which no art has yet been found sufficient to convert to good permanent grass, and will demand a man's life to do it. Beyond this comes the immediate line of the Trent, which, like the borders of most rivers, that pass a flat country, is a very rich warp loam of various description. Returning to the Heath hill, and looking eastward, there is no cliff, but the country slopes gradually into a vale, of soils too various for description, but not good in its general feature. Half way to the Wolds, but in a line not regular, there is a rising tract of good land, that is narrow, on which the villages are built, this sinks again into another part of the various soiled vale to the Wolds. Thus forming, between the Heath and the Wolds, first the narrow ridge on which the villages are built, let at about sixteen shillings. Then the Ancholm flat at fourteen shillings. The ridge of pasture at sixteen shillings. A flat of moor very bad ; and then the Wolds.

About Gainsborough there is the same disposition observed in the country, for the soils to be found in north and south longitudinal direction. Between Gainsborough and Newark, for twenty-five miles, all is sand, with a flat marsh tract on the river, sometimes very narrow indeed ; whereas on the Nottinghamshire side, it spreads into wide commons. This is the case at Knaith. Behind the sand, which is good and in tillage, is a tract of

cold wet clay. At Martin the sand is very rich, and lets at thirty shillings.

The soil of the isle of Axholm is among the finest in England; they have black sandy loams; they have warp land; they have brown sands; and they have rich loams, soapy and tenacious; the under stratum at Haxey, Belton, &c. is, in many places, an imperfect plaster stone.

The space from Tilby to Scunthorp, four miles long, north and south, and three miles broad, east and west, chiefly light sand; but producing good turnips, barley, and rye. From Scunthorp to Messingham, part sand, part cold clay, and much open field. Winterton, good channelly loam, on a limestone substratum; Wintringham, very rich; Alkborough, mixed sand; Halton, good arable; Roxby, part sand, good barley, and turnip, and some wheat; Coalby, good wheat and beans, excellent loam. These form the nook south of the Humber. Under the whole country, generally speaking, stone is to be found at various depths. No plaster.

But the finest estate I have seen of some time for soil, is the lordship of Wintringham; it consists of three descriptions of land; marsh, called here warp and *grove*; strong loam under the bean husbandry; and dry loam for turnips. All three are excellent. The marsh is a tract of alluvion of the Humber, deposited to the depth of six feet, and apparently as good at bottom as at top. The bean land is not a strong loam; but a friable sandy loam, with clay enough in it to give it rather too adhesive a tenacity for turnips. The turnip land is a reddish, friable, rich loam, dry, but putrid; a finer soil can scarcely be seen, adapted to every crop that could be put into it.

Various good soils through Whitton and Halton.

Barton field, of 6000 acres, is a good turnip dry loam, on chalk of various depths, dry at bottom, yet moist enough on the surface from texture to fit it for all

common crops, and does well both for sainfoin, and wheat.

It would be loss of time to attempt many distinctions in the soils of the great tract of the Wolds ; all I saw or heard of is, a sandy loam, on a chalk bottom ; the quality very various, from poor sand, producing heath, (*erica vulgaris*) to rich, deep, fertile loams, that yield capital crops of barley and wheat, and some even beans.

Between the boundary of the Wolds, (see the Map) and the sea, there is the tract called the Marsh and Middle Marsh ; the former is a rich tract of salt marsh, the soil therefore well known ; the latter is a line of strong soil, called *the Clays*, and it is stiff ; but from Belesby towards Grimsby consists of a strong brown loam, much superior to a real clay.

To the west of Castor there is a bad moor for some miles extent, which was reported to me to be so bad as not to be worth cultivating ; but on examining it I found it miserably pared for fuel : it is not good ; but would pay well for inclosing and cultivating. It belongs to Sereby, Grasby, Clixby, Audleby, Hundon, and Castor ; the soil is a peaty sand, on a hungry reddish sand stone.

Going from Brocklesby to Cadney, I had an opportunity of viewing from a contrary point of high lands, that series of ridges of country, running longitudinally north and south, which I viewed from the Heath at Norton Place, and found Mr. Harrisson's observations confirmed. The line of pasture at Cadney, &c. is here rushy and rough, and lets at not more than fifteen shillings. The soil is strong, and almost impassable in winter, as a clergyman found, who, as the tale goes, leapt all the hedges to pass to church by the fields, and, being stopped by the occupier, was forced to box and thrash a farmer, in order to obtain permission to pass for the future.

There is some very rich pasture in front of the new



parsonage at Bigby, a very deep, reddish, brown, strong loam. The verdure luxuriant.

At Belesby the soil changes from dry wold land to stronger and richer, and soon, in descending, becomes clay ; it is chiefly pasture ; but every one has some arable.

In digging Grimsby haven, they cut twenty feet deep in a bed of stiff, blue, clayey warp, with many micaceous particles.

In that part of the Marsh district, which I viewed at Humberstone, and to Tetney, the soil is a strong, fertile, clayey loam, but with much sand in it and mica ; which looks as if the whole had been once an alluvion of the sea, resembling an argillaceous warp—no sand, no gravel, no chalk, no rock ; with rain it is greasy, and with successive sunshine, hardens into brick. Nearly the same quality of land, but, with slight variations, holds all the way thence till the hilly lands near to Louth.

The wold land about Louth, to the west and south west, is good, very generally a dry, friable, loamy sand, on a flinty loam, and under that, chalk every where ; this is the soil on the warrens between Gayton and Tathwell, which I passed, and I was much hurt at seeing such land so applied. I exclaimed to Mr. Clough on seeing it ; he replied, *Oh ! it is good for nothing but rabbits, what would you do with such poor land two or three miles from the farms ?* When men have long been accustomed to see rabbits on such deserts, and heard only that they are good for nothing else, they come to think with their neighbours, let the absurdity be what it may. But here are no leases, and therefore can be few or no effective improvements. These silver grey rabbits answered better when their skins sold high. The friable surface loam is various. There is much excellent, and also some rich pasture and upland meadow on it, and of all degrees of quality ; and, on the sides of the hills, great spaces covered with rushes, from springs, but not

a draining idea, except of paltry grips that are all vain. But to drain well demands leases.

From Louth to Saltfleet, Sutton, and then to Alford and Spilsby, a considerable tract of the Marsh and Middle Marsh is viewed. The soil of the Marsh is rich, adhesive, marine clay and loam; and the Middle Marsh resembles it; but is of inferior fertility, much in open arable fields detestably managed: fertility very great, indeed, on the Marsh, as is noted under the article Grass Lands.

From Spilsby to Boothby, in the Middle Marsh, much excellent soil; and, in the vale of Partney, the broken banks of the river make a rich and deep display of a fine mellow reddish loam, apparently an alluvion of the river. Towards Boothby there are lanes which have a tendency to *moak* and *blather*.

The hundred of Skirbeck is in general extremely various; in the part near Boston, and some others, the surface is a rich loam, upon clay first to some depth, and then the silt, which is found at a certain level in general; this silt is a porous sea sand, which has been deposited ages ago, becomes firm with rain, but is not fertile; near the sea there is a thin covering upon clay, and Mr. Linton has observed, that by ploughing into it no damage has been sustained; however, it is a general observation, that the soil is best where there is none near it. Near the fen there is an infertile very stiff blue clay upon the surface; grass almost always mown: the very richest pastures are a black mould, or mass of vegetable particles.

The sandy soil, which prevails from Spilsby to Reevesby, extends very much in the following parishes; Tattershal, Tattenshal, Thorpe, Kirkby, Roughton, Coningsby, Tumbly, Tofthill, part of Mareham and Reevesby, East Kirkby, Hagnaby; much in East and West Keal; Spilsby, Haulton, High Tointon, Partney, Hundleby, part of Langton, all Asgarby, Harrington, part of Agworthingham,

Somersby, Enderby, Salmonby, Ashby Puerorum; part of Greetham; part of Tetford, Belsford, Goulsby, Asgarby, Scamblesby, Stennigate, Hainton, Willingham, and the Raisins, Market Raisin all sand. The other soils in the vicinity of Reevesby are white marl or blue clay, the latter of which makes the best pasture. The fen lands consist of a heavy, deep, sandy loam, which makes very rich breeding pasture for sheep, but not for feeding; another part of a rich soapy blue clay, and another of black peat, consisting of decayed vegetables, and when drained, is deemed by the inhabitants to be of all others proportioned to rent the best for arable.

The tract of Wold north of Louth, by Elkington, Ormsby, Wyham, Binbrook, Swinop, Thoresby, &c. exhibits a great variety of excellent soil, all calcareous, friable, sandy loams on a chalk bottom, dry enough to feed turnips where they grow, and much good enough for wheat. The red chalks are particularly good, being almost without exception excellent for turnips and barley. At Thoresby Warren the vales are red, and nettles are among the spontaneous growth. Nettles and rabbits together!!

Very good loamy land from Hainton to Lincoln, of various qualities.

About Claypool the soil is very strong and excellent; a fat clay, but subject much of it to floods: fine bean land, and does some very well for seeds, but they soon wear out on the inferior lands; the better fields run well to white clover; and Mr. Hebb gave me an instance of a seedsman sowing very ill, and not joining his casts, yet in three years no distinction, all run equally to white clover.

Five or six miles round Grunthorn, at Grimsthorpe, Tromestead, Edenham, Swayfield, Bytham, Witham, &c. the soil is sand, creech, or clay; the creech the best for

arable; the sand whitish, or light red; some of the clay good, much of it cold, wet, and poor.

There is fen below Bourn and Marton, which joins the great tract to the Isle and to Boston.

#### SECT. 5.—*Water.*

In the low districts the water is almost every where brackish.

At Horbling there are very fine springs of water; and at Billingborough, Mr. Fydel of Boston sends his cart seventeen miles for this water.

On the Heath to the north of Spittal, there are brooks almost in every valley.

At Haxey, in the Isle of Axholm, the water is uncommonly hard, impossible to wash with; mixed with milk, it turns it in boiling to a curd; the under-stratum an imperfect gypseous stone. They have here and there wells of better water.

Upon the Wolds near Brocklesby they make artificial ponds for their sheep; by a layer of clay of six inches, well beaten and trodden by sheep, &c. and then covered with flints, to keep the feet of cattle from piercing the clay.

In the parishes of Tetney, Fulstow, and that vicinity, blow-wells, which are deep flowing pits of clear water, which flow in considerable streams; the depth said to be unfathomable; but Sir Joseph Banks found the bottom without difficulty at thirty feet. The same thing as at Bourne, where a spring turns a mill almost as soon as out of the earth, near the flat country, and from the chalk hills.

There are sometimes in very dry seasons a want of water in the rich marshes of Skirbeck hundred, and about Boston; no springs or ponds are made for cattle which will fail: the *sock* or *soak* among the silt is sometimes brackish.

In the sandy parishes that reach from Spilsby to Tattershal there is every where plenty of water, which breaks out of the hills in springs, and if not cut off, find their way into the fens below.

Mr. Loft, at Marsh Chapel, bored for water, and with great success: it yields a constant stream from the depth of above 100 feet; runs equally every year, and in all seasons, enough for 100 head of cattle; but it is apt to silt up: to prevent which he tried a tin pipe, but it rusted and spoiled: has since put down a copper one to the depth of eighty-one feet.

There is at Louth a spring, which always runs in summer, and never in winter.

At Binbrook I remarked several very powerful springs; and the Rev. Mr. Allington shewed me, at Stainton, some other beautiful ones. These all run into the sea near Tetney; and I conclude that hereabout is the highest point of the Wolds, for afterwards going from Kirmond to Tealby, I found the streams running to the west.

The navigation of the county is treated of under another head, where the Trent will be mentioned.

There is nothing in the other rivers which demand particular attention, unless it be the circumstance, that the whole course of the Witham from the spring to the sea is within the county.

## CHAPTER II.

## PROPERTY.

IN respect of property, I know nothing more singular respecting it, than its great division in the isle of Axholm. In most of the towns there, for it is not quite general, there is much resemblance of some rich parts of France and Flanders. The inhabitants are collected in villages and hamlets; and almost every house you see, except very poor cottages on the borders of commons, is inhabited by a farmer, the proprietor of his farm, of from four or five, and even fewer, to twenty, forty, and more acres, scattered about the open fields, and cultivated with all that minutiae of care and anxiety, by the hands of the family, which are found abroad, in the countries mentioned. They are very poor, respecting money, but very happy respecting their mode of existence. Contrivance, mutual assistance, by barter and hire, enable them to manage these little farms, though they break all the rules of rural proportion. A man will keep a pair of horses that has but three or four acres, by means of vast commons, and working for hire.

The inclosure of those commons will lessen their numbers, and vastly increase the quantity of products at market. Their cultivated land being of uncommon fertility, a farm of twenty acres supports a family very well, as they have, generally speaking, no fallows, but an endless succession of corn, potatoes, hemp, flax, beans, &c. They do nearly all their work themselves; and are passionately fond of buying a bit of land. Though I have said they are happy, yet I should note that it was remarked to me,

that the *little* proprietors work like Negroes, and do not live so well as the inhabitants of the poor-house ; but all is made amends for by *possessing* land.

In the angle of country in the north-west of the county, the land is possessed by half a dozen persons. The coast from Ferraby Sluice to Gun-house inclusive, nearly all belongs to Lord Carrington, Sir John Sheffield, and Mr. Goulton.

#### SECT. I—*Estates, and their Management.*

IN this immense county there are found, as in all such extensive districts, estates of every size : my list, without pretending to correctness, contains one of £25,000. a year ; one of £14,000. ; one of £11,000. ; six of £10,000. ; one of £8000. ; one of 7,500. ; two of £7000. ; one of 6000. ; one of £4,500. ; one of £4000. ; seven of £3000. ; five of £2,500. ; one of £2,100. ; six of £2,000. : but from the situation of these properties, not spreading into some large districts, I have reason to believe that the catalogue is very incomplete ; that it must be incorrect, the nature of such inquiries insures to a certain degree.

Upon inclosing Kirton, it was found there were 146 proprietors in 5000 acres, two of them possessing 1500 acres.

On the inclosure of Barton there were above 120 proprietors. About a third of the parish possessed by the two Mr. Grayburns. Some owners have one to three hundred a year ; and abundance of small proprietors, themselves the occupiers.

Lord Yarborough's property is very extensive around Brocklesby ; he has the lordships of Brocklesby, Immingham, Hayborough, Great and Little Limber, Audleby, Cayburn, Swallow, Kerrington, Croxton, and Melton, all contiguous, besides abundance more scattered.

Laceby is, I think, one of the prettiest villages in the county ; containing a great number of very well built houses, with much air of comfort, and several of a more considerable appearance, and being on a slope of country, and very well wooded, with a fine clear stream through it, the aspect is on the whole very pleasing : I inquired the cause, and found it inhabited by freeholders ; each man lives on his own.

At Wintringham, Lord Carrington has a man employed, whose only business is to be constantly walking over every part of the estate in succession, in order to see if the fences are in order : if a post or a rail is wanting, and the quick exposed ; he gives notice to the farmer, and attends again to see if the neglect is remedied. This, upon a tract of land large enough to bear the expence, is an excellent system.

There is nothing in the state of property in Lincolnshire that pleased me more than to find on the Wolds, and especially about Louth, men possessed of estates of three, four, five, and even six or seven hundred a year, and yet remaining farmers, occupying other farms hired, and some of them living merely on their own, but keeping entirely to the manners and the appearance of farmers ; consequently thriving, independent, and wealthy, and in consequence of all, as happy as their personal merit, their moral virtue, and dependance on, and attention to, their religious duties permit them to be. Such a spectacle is not only pleasing to an individual, but highly beneficial to the community ; such men are able to cultivate their land well, and to make exertions not in the power of weaker efforts ; and would do much more if it was the custom of the county to give leases ; but unfortunately it is not.

In the vicinity of Reevesby freeholds, in Sir Joseph



Banks's time, have upon the whole diminished ; but in South Holland it is said that they have increased much.

A fifth part of all this neighbourhood is small freeholds, but in the Fen parishes half are so.

In the hundred of Skirbeck property is very much divided, and freeholds numerous. In the parish of Fries-ton, containing above 3000 acres, there is not one plot of more than 48 acres together, belonging to one person ; some late purchases have raised it to 60 acres.

In the management of a great estate, I remarked a circumstance at Reevesby, the use of which I experienced in a multitude of instances. The liberality of Sir Joseph Banks opened every document for my inspection ; and admiring the singular facility with which he laid his hand on papers, whatever the subject might be, I could not but remark the method that proved of such sovereign efficacy to prevent confusion. His office, of two rooms, is contained in the space of thirty feet by sixteen ; there is a brick partition between, with an iron plated door, so that the room, in which a fire is always burning, might be burnt down without affecting the inner one ; where he has 156 drawers of the size of an ordinary conveyance, the inside being thirteen inches wide by ten broad, and five and a half deep, all numbered. There is a catalogue of names and subjects, and a list of every paper in every drawer ; so that whether the inquiry concerned a man, or a drainage, or an inclosure, or a farm, or a wood, the request was scarcely named before a mass of information was in a moment before me. Fixed tables are before the windows (to the south), on which to spread maps, plans, &c. commodiously, and these labelled, are arranged against the wall. The first room contains desks, tables, and bookcase, with measures, levels, &c. and a wooden case, which when open forms a bookcase, and

joining in the centre by hinges, when closed forms a package ready for a carrier's waggon, containing forty folio paper cases in the form of books; a repository of such papers as are wanted equally in town and country. Such an apartment, and such an apparatus, must be of incomparable use in the management of any great estate: or, indeed, of any considerable business.

### SECT. 2.—*Tenures.*

AT Ferraby, Sir John Nelthorpe has a right to turn in horses on the common meadows saved for hay; and it is preserved to the present time.

At Thong Castor, at Whitsuntide, the lord of the manor has a right to whip the parson in his pulpit. I was told of this strange tenure, but do not vouch for the truth of it.

Tenures in this country are much copyhold in the low country, but not much in the higher land; and a considerable quantity in church-leases; let some for three lives, and others for twenty-one years, renewable every seven: and many Crown lands let for years.

Lord Exeter has property on the Lincoln side of Stamford, that seems held by some tenure of ancient custom among the farmers, resembling the *rundale* of Ireland. The tenants divide and plough up the commons, and then lay them down to become common again; and shift the open fields from hand to hand in such a manner, that no man has the same land two years together; which has made such confusion, that were it not for ancient surveys it would now be impossible to ascertain the property.

## CHAPTER III.

## BUILDINGS.

SECT. I.—*Seats and Houses of Proprietors.*

THIS is a subject of considerable consequence : to men of small fortune who are under the necessity of building ; to contrive a house that shall be convenient, well adapted to the mode of living of the proprietor, and capable of being executed at as moderate an expence as may be, is an object worthy of attention. In such an inquiry nothing more is to be expected from a hasty survey, than to omit no opportunity of noting the practices which seem effective, and may not be generally known ; such scattered remarks, when the whole kingdom is reported, may probably afford much useful intelligence.

Observing at Brothertoft, that Mr. Cartwright's stucco was remarkably hard, and not discoloured, I inquired the process ; he favoured me with the following very interesting particulars.

*The Materials used, and the mode of preparation, in making and applying the Stucco, with which the house at Brothertoft farm is fronted.*

“ It is to be observed, that stucco for ceilings, which is not exposed to the weather, and which is required to be elastic, that it may not crack with the vibration of the floor above, is properly made with effete lime, in which the cementing principle is become weak. It is apprehended also, that the workmen, not making the necessary distinctions, have been accustomed to carry into practice the same mode of making their stucco for the

walls of rooms, staircases, &c. where it should seem a strong cement would be preferable to a weak one ; and in general carried away by the notion of its being necessary to have stucco *elastic*, and *tough*, instead of perfectly hard, and consequently brittle like stone ; they have even for the most part prepared stuccos for the outsides of houses on the same principle as for ceilings. Mr. Cartwright thinking this a gross error, and that an external stucco ought, if possible, to have all the properties of the hardest stone, determined to proceed accordingly.

Agreeing with Anderson respecting the properties of lime as a cement,\* Mr. Cartwright imagined the whole business to lie in the purity of the lime and the sand, in the lime being as fresh from the kiln as possible, in the proportions adopted in the mixture, and in the care observed in forming it ; and he therefore proceeded as follows :

1. River sand was obtained, of which the stony particles in general were about half the size of white clover seed ;† some of them larger. After using a common bricklayer's riddle to clear the sand of gross impurities, it was well washed in six successive waters ; putting into the tub at a time a small quantity of sand to a large quantity of water. This number of washings perfectly freed the sand from all earthy particles, so that it would not soil a white handkerchief ; which is the point to be secured, whether it require less washing or more.

2. The lime came from Warmsworth, near Doncaster, as fresh from the kiln as the length of the navigation would admit. In slacking it, no more water was used than absolutely necessary to reduce it to powder, and the operation was performed on a clean flag pavement laid

\* See his *Essays on Agriculture and Rural Affairs*, Vol. I. *Essay on Quicklime*.

† It is not imagined the size of the sand is material, except it be in an extreme either way. The reasons for avoiding extremes in this particular will be seen in what respects the mixing the materials.

on purpose. Without waiting for the whole being pulverized, the fine part was separated by a fine riddle from the coarse. The fine part was again immediately passed through the finest sieve used for dressing flour for French rolls, pastry, &c.

3. The materials being thus purified, and in readiness, they were mixed in the proportions of six parts of sand to one of lime, and the greatest care taken to make the mixture as intimate as possible before any water was put to it. *Lime-water* was then put to it in very small quantities at a time, working the sand and lime together with the greatest attention, and without sparing labour. This operation was also performed on a clean flag pavement, and a spade used in preference to the common wooden beater. The action of the spade was much the same as applied by the bricklayer's labourer, when preparing mortar for immediate use; but of course in preparing this cement, abundantly more pains were bestowed upon the operation.

It being the intention of this operation, first to bring particles of the water into contact with every particle of the lime, now reduced to an impalpable powder; and then to spread this moistened lime over every face and every angle of each particle of stone of which the sand is composed; it is evident that too much nicety cannot be bestowed upon it, and that the labour ought not to cease until the end be obtained. As in the water there is no cementing principle, there ought to be no more used than sufficient for moistening all the particles of the lime. And as, in this moistened state, it is the property of caustic lime, coming in contact with flints and other stony particles, to crystallize, with a powerful adhesion to such particles, it should seem that the quantity of such moistened lime should only be sufficient for merely filling up the interstices between the particles of sand.

Hence it is very probable, that the stucco here particularly spoken of might even have been improved by a larger proportion of sand than was used; although indeed it is apparently perfect in a very high degree. But the proportion of sand should ever be regulated by the quality of the lime made use of; for as lime (not affecting to speak with the utmost chemical accuracy) is nothing more than calcareous matter united with sand; so if the limestone itself contain a large proportion of sand, a smaller proportion will of course be required to form a good cement. It was therefore on a presumption, that Warmworth lime, which is in esteem for making good mortar, contained a considerable proportion of sand in its own composition, that Mr. Cartwright adopted the proportion of river sand he used in his stucco.

4. As only one steady careful workman ought to be employed about the cement (unless a very large work were in hand), and as it is disposed to crystallize very rapidly, no more should be made at a time than the plasterer or plasterers can lay on at once; and all that may be spared at night, should be thrown to the common mortar heap, and fresh stucco made in the morning,

In preparing the stucco for his house, Mr. Cartwright attended personally for the greater part of the time; but there are small variations of colour in some parts, which he considers as proofs, that in his occasional short absences the materials were not always mixed with all the attention required for a perfect work.

5. Prior to laying on the stucco, the wall is to be washed with a brush and *lime-water*; and as the making of lime-water is attended with neither trouble nor expence, it is recommended even to use it in slacking the lime, that the lime first used may correct any possible quality in the water unfavourable to the cementing principle.

If an *old* wall is to be stuccoed, all moss or other vegetation must previously be removed. The face of the house at Brothertoft farm was so much covered with green moss, that it was thought necessary to dress it over with a mallet and chisel, and then to scrub it with a hard brush, constantly dipped in lime-water.

The stucco has now stood four winters, with every appearance of hardening with time ; and, in consequence of the agreeable colour of the sand made use of, the composition has a tint, a shade or two darker than Portland stone, but much more uniform in colour. That stone, when nearly inspected, has a spotted appearance ; whereas this stucco, carefully made, will always resemble a stone of one uniform grain ; and is extremely well adapted to buildings of elegance.

From considering the simplicity of the composition, and the extreme stoney hardness of the stucco, Mr. Cartwright is strongly persuaded that in this very composition we have the whole secret of the cement of the ancient Romans, consisting of nothing but lime and sand in purity, and knowing how to make use of them. Particles of brick are frequently found in their mortars, and may be no bad substitute for good sand. If a recovery of the fixed air, expelled by burning limestone, be necessary to great hardness, and the perfection of cement, we must not expect new made stucco or mortar to rival that which has been made two thousand years ; but so far as a judgment can be formed from examining the stucco now spoken of, by the stroke of iron tools, without absolutely breaking into it, its present hardness is equal to that of excellent stone, and it bids fair to endure as long as the best."

It is not consistent with the design of this work to describe seats ; but as I find an article in the arrangement

of chapters and sections with this title, there are one or two notes I took which I venture to introduce. The creation Mr. Harrison has formed at Norton deserves to be mentioned, because for 22 years it is really surprising. What is now Norton Place was, 23 years ago, an open field, under the barbarity of the common field system: there is now an excellent house, with offices complete, a large lawn, a water half a mile long, a very handsome bridge over it; a garden walled, with the appurtenances, and shrubberies planted with taste, and kept in beautiful order, and the whole surrounded with flourishing plantations, that have attained for their age a very fine growth. There is upon the whole; turn which way you will, a finished air; it is complete, and an extraordinary place for 22 years to have effected.

Thirty years ago I was at Summer Castle, Sir Cecil Wray's, and my surprise at viewing it again was very great; the plantations are of such extent as to fill the eye on every side, and the lawn so great, with the castle boldly seated on the highest ground, looks down on the woodland vale, where the water appears to great advantage. What a scene of wood, &c. to be raised for miles together, in such a space of time!

Those who are fond of mild snug retreats, where taste is more indulged than grandeur, and an execution in a difficult line, free from affectation, will approve Knaith, the ornamented cottage of Mr. Dalton: it is very pretty, on the Trent, sheltered with hills and woods, and the house in a style that must please every one; the drawing room opens into the green-house, which is planted like a conservatory, and not benches of pots and tubs, in the common formal order. If this sort of pleasing luxury is connected with a house, something of a walk, or shrubbery of exotics, disposed as in a decorated garden, only covered with glass, is far preferable to green-houses, which are



so absolutely artificial to the eye without any circumstance to take off the effect, that one views the proudest assemblage of plants with comparative indifference.

Of Lord Yarborough's immense plantations, I speak in another place.

Grimsthorpe Park is one of the most extensive in the kingdom; there are three ridings in it, each four miles in the straight line, and not in the same direction. Magnificence resulting from the extent of the space under lawn, from the happy position of the woods, and the situation of the castle, commanding on one side the park and water, and on the other a large extent of cultivation, is the character of the scene: there is more variety than strangers who pass it quickly would conceive; the rough forest scene near the Black quarry and May's Hill are very different from the rest; and if the vale beneath had been floated, as was once intended, there would have been few water scenes more beautiful in the kingdom.

#### SECT. 2.—*Farm Houses.*

MR. HOYTE, at Osbornby, having built a new and very convenient farm house, which I thought remarkably cheap, I requested the elevation, plan, and estimate of it.

*The Sum Total of the Estimate of Mr. Hoyte's House, Osbornby, Lincolnshire; all the Materials, Carriage, and every Article complete, for the Sum of £919. 18s. 11½d.*

*James Norbury, Billingborough,—Carpenter's Work.*

Cube ft. In.

87	0	oak to bottom floor, and labour, at	£.	s.	d.
		3s. 6d.	-	-	-
				15	5 4½
9	6	oak-wrought rabited, and in-door			
		and window, at 4s. 6d.	-		
				2	2 9
		Carried forward	-		

**MR HOYT'S HOUSE.**

**Ground Plan**

Parlor 12' x 16'  
 Drawing Room 12' x 16'  
 Sitting Room 12' x 16'  
 Breakfast Room 10' x 12'  
 Kitchen 8' x 10'  
 Passage  
 Veranda  
 Porch  
 Stairs

**Chamber Plan**

Chamber 12' x 16'  
 Chamber 12' x 16'  
 Chamber 12' x 16'  
 Chamber 12' x 16'  
 Dressing Room  
 Bath  
 Stairs

(2) *Three/Three* 4/1



# OF LINCOLNSHIRE.

29

Cube ft. In.

£. s. d.

Brought forward -

757	6	fir to roof, floor bond timber, and labour, at 3s.	-	-	113	12	6
77	0	ridge roller to roof, run at 3d.			0	19	3
679	0	superficial clean batten floor, and dowl- ed, at 80s.	-	-	27	3	6
1175	0	white-deal floor, superficial, at 37s. 6d.	22	0	17½		
424	0	sashes and glass, weights, lines, and complete, at 3s.	-	-	63	12	0
22	0	sash to skylight, at 2s. 4d.	-	-	2	11	4
103	6	clean deal stairs, at 1s. 6d.	-	-	7	15	3
87	0	ramp and knotted hand rail, mahoga- ny and deal banisters, at 1s. 9d.			7	12	3
205	6	inch deal backs and elbows, at 5½d.			4	13	11
288	0	inch deal grounds to doors and win- dows, at 6d.	-	-	7	4	0
354	0	double architraves to doors and windows, at 10d.	-	-	14	15	0
161	0	single architraves, at 8d.	-	-	5	0	8
Two chimney-pieces, ornamented, at £3. 10s.					7	0	0
Two chimney-pieces, at 18s.			-	-	1	16	0
One chimney-piece, at 9s.			-	-	0	9	0
366	0	window shutters quirk, ogee and astra- gal inch ½ and 2 heights and 4 panels, at 12d.	-	-	18	6	0
163	6	framed jambs to door, soffits, quirk, ogee astragal in 2 and 3 panels, at 11d.	-	-	7	9	5
652	0	narrow grounds to mouldings, at 2d.			5	8	8
151	6	superficial base and surbase mouldings, at 10d.	-	-	6	12	6
45	0	base moulding and dust board, at 9d.			1	13	9

Carried forward -

Cube ft.	la.		£.	s.	d.
		Brought forward	-		
170	0	of $\frac{1}{4}$ deal dust board, at 4d.	-	2	16 8
225	9	of $\frac{1}{4}$ deal wash-board, moulded edge, at 5d.	-	4	5 1
31	0	of $\frac{1}{2}$ inch deal capping to backs and el- bows, at 2d.	-	0	5 2
125	0	of narrow capping to surbase, at 1d.	-	0	10 5
431	0	inch $\frac{1}{4}$ moulding ogee and bead run at 2d.	-	5	6 9
158	6	inch $\frac{1}{4}$ door, six panel quirk, ogee astra- gal, both sides, at 1s. 4d.	-	10	11 4
158	0	double rabited inch $\frac{1}{4}$ door cases, at 8d.	-	5	4 3
14	0	of inch and $\frac{1}{4}$ deal window board, mould- ed edge, at 7d.	-	0	13 3
24	6	of 2 inch $\frac{1}{4}$ 6-panel work, both sides, quirk, &c. at 1s. 6d.	-	1	16 9
		Frontispiece to door	-	3	15 6
		To iron fanlight top of front door	-	-2	2 6
123	1	cornice to front of house, &c. at 1s. 6d.	-	9	4 7½
123	0	battening to walls, at 7d.	-	4	6 4
48	0	gutter boarding, at 3d.	-	0	12 0
		Two coat painting, at 6d.	-	0	10 0
543	0	sound-boarding, at 16s. 6d.	-	4	9 8
32	0	two inch six-panel bead and flush, at 1s.	-	1	12 4
48	0	$\frac{1}{4}$ deal shutters, at 6½d.	-	1	6 0
51	9	inch $\frac{1}{2}$ deal 6-panel door, quirk, &c. at 1s.	-	2	11 8
124	6	inch $\frac{1}{4}$ deal six-panel door quirk, ogee and moulded back, at 1s. 2d.	-	7	5 2
13	3	pilasters to niche, at 12d.	-	0	13 3
138	0	inch deal framed shutters to cupboards fronts, at 11d.	-	6	5 11½
150	3	inch deal shelves, cut edges, to cup- boards, at 7s.	-	4	7 6½

---

Carried forward -

# OF LINCOLNSHIRE.

31

Cube ft. In.

£. s. d.

Brought forward -

31 0 inch $\frac{1}{4}$ deal pegs to hang clothes in closets, at 7d.	-	-	0	18	4
102 9 inch deal back stairs, at 9d.	-	-	3	17	0
204 0 framed closet fronts, at 12d.	-	-	10	4	11
To 2 chimney-pieces, at £ 3. 10s.	-	-	7	0	0
19 0 inch deal door, at 6 $\frac{1}{2}$ d.	-	-	0	10	3 $\frac{1}{2}$
18 0 $\frac{1}{4}$ deal doors, at 6d.	-	-	0	9	0
15 3 inch $\frac{1}{4}$ deal bead and butt 4-panel doors, at 10d.	-	-	0	12	8 $\frac{1}{2}$
39 0 angle beads to jambs, at 3d.	-	-	0	9	9
76 0 ditto ditto ditto, at 3d.	-	-	0	19	0
To 22 spring window bars, at 3s.	-	-	3	3	0
72 pair of butt joints and screws, 1s. 2d.	-	-	4	4	0
48 strong brass drops, at 8d.	-	-	1	12	0
7 iron-rimmed locks, brass handles, at 7s.	-	-	2	9	0
32 pair of butt joints and screws, at 2s. 4d.	-	-	3	14	8
46 ditto ditto ditto, at 1s. 6d.	-	-	3	9	0
10 fine warded locks, at 7s. 6d.	-	-	3	15	0
18 glass bars, at 6d.	-	-	0	9	0
7 cupboard locks, at 2s.	-	-	0	14	0
8 chimney bars to chimney, at 6s.	-	-	1	10	0
3 strong iron bolts, at 2s. 6d.	-	-	0	5	0
7 thumb latches, at 2s.	-	-	0	14	0
40 ridge roll irons, at 6d.	-	-	1	0	0
16 feet of green glass, at 1s.	-	-	0	16	0
10 cwt. of lead, at 28s.	-	-	12	14	0
4 cwt. of mill lead, at 30s.	-	-	6	15	0
rain water pipe head	-	-	1	0	0
6 yards of pipe to ditto, at 9s.	-	-	2	14	0
Bill ditto, day's work, putting nails, &c.	-	-	3	2	7

Total - £. 502 16 2 $\frac{1}{2}$

*The Bricklayer's, Slater's, and Plasterer's Work, to Mr.  
Hoyle's House.*

	£.	s.	d.
To 105 yards of gage chopped stone wall, on front, clean arches to ditto, at 3s. 3d.	17	1	3
518 yards of chopped stone walling, and clean arches, at 2s. 6d.	64	15	0
34 yards of rough stone walling foundation, at 1s. 6d.	2	10	0
36 yards of nine inch brick wall, at 6s. 6d.	11	14	0
46½ yards of brick wall, at 17d.	3	5	2
building chimnies	7	2	0
bricks to ditto	2	10	0
120 feet of water-tabling, at 6d.	3	0	0
83 feet of stone sills to sashes, at 1s.	4	3	0
37 feet of astragal stone steps to front, at 22d.	3	7	10
36 feet of plain stone to passage, at 1s.	1	16	0
7 feet of stone sill to kitchen, at 1s.	0	7	0
77 feet of stone chimney-pieces, at 1s.	3	17	0
477 feet of stone floor, at 7d.	13	18	3
182 feet of ditto, at 7d.	5	6	2
34½ feet of brick pavement, at 17d.	2	9	7
62 yards of plaster floor, at 2s. 6d.	7	15	0
404 yards on the walls, at 6d.	10	2	0
32 feet of , at 1s.	1	12	0
63 feet of enriched cornice, at 20d.	5	5	0
258 feet of cornice, at 8d.	9	10	0
63 feet of plain cornice, at 8d.	2	2	0
346 yards of 3-coat plaster ceiling, at 16d.	23	1	4
201 yards of 3-coat plaster on walls, at 1s.	15	3	0
54 feet of stone coping to chimnies, at 1s. 6d.	4	0	0

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Carried forward -

# OF LINCOLNSHIRE.

33

£. s. d.

Brought forward -					
To 12 yards of composition to chimnies, at					
18d.	-	-	0	18	0
258 yards of 2-coat drawing on reed, at 10d.			10	15	5
29½ square of blue slating, &c. at 15s.			22	6	3
Scaffolding to ditto	-	-	5	0	0
Niche in dining room	-	-	2	12	6
2 Ovals, &c.	-	-	1	1	0
220 load of stone-carriage, at 5s. 6d.			60	10	0
40 chaldron of lime, at 14s.	-		28	0	0
carriage of lime, 20 load, at 4s.	-		4	0	0
11¼ ton of slate, at Boston, portage 4s. 6d.					
at 83s.	-	-	47	19	0
20 miles carriage of ditto	-		8	8	0
Total -			417	2	9

Mr. Gregory of Humberstone, near Grantham, has great merit in building new houses and offices for his tenants to a remarkable degree ; under the direction of Mr. N. Stubbins of Pierepont, near Nottingham.

About Norton, and all along the Heath tract, repairs are done, if considerable, by the landlord, and smaller by the tenant ; £500. will raise all the buildings, house included, for an arable farm of 400 acres. Mr. Harrison, has, at Kirton, raised a new house and farm offices, including complete bullock stalls, and yards for thirty-six bullocks, which had he had no old materials, would have cost him £800. the farm 400 acres.

Mr. Thorpe at Owersby, has built a pigeon-house over the thrashing-floor of the barn, which he recommended me to observe, as he thought it a proper place for it ; I am inclined to think that thrashing-floors will so



soon be entirely discarded, that it is not worth thinking what should be put over them.

Upon Sir John Sheffield's estate, on occasion of repairs upon a large scale, such as additions, the rent is raised  $7\frac{1}{2}$  per cent. upon the money expended. Repairs are done by the tenants.

At Winterton, there is a famous windmill, that cost £2000. building. It has five sails, 30 feet long, of wood, in cross boards, no sail-cloth, space between, and they open and shut at pleasure: the great axletree is of iron, and took twenty-two oxen to draw it.

At Wintringham, Lord Carrington has built several new farm-houses, barns, &c. with conveniences for new farms, and at a rate which shews the cheapness of such works in this country.

Mr. Lloyd of Belesby, who has built various conveniences, among the rest a good barn, by contract with his landlord, remarked, that for tiling, the laths should be laid over first with a regular cast of mortar, like plastering a house, and then the tiles laid on; his on the new barn are pantiles: they last thus as long again.

At Gayton, near Louth, the farmers do all repairs, and buy timber for them; such circumstances should be noted, for without them the rent of land cannot be properly judged.

About Reevesby the farm houses built of late years, are of brick and tile; and for a farm of £100. a year, a dwelling will cost about £250. the stables £50. the cart-house, cow-house, hogsties, &c. £50.; the barns will cost £80. and £50. The old buildings are of timber, walled with clay, called stud and mud, and covered with reed; some with wheat and rye straw, which when new, will cost one third less than brick and tile.

Mr. Ellisson, at Sudbrook, has built farm-houses complete; one cost £370. every thing included except leading,

for a farm of £280. a year, being 478 acres. For another for 235 acres, £290.

The dairy at Grimsthorpe is one of the best contrived that I have seen ; coolness is secured by its being sunk in the side of a hill, and from shade unpierced by the sun ; air in every direction, and a double roof. The management seems as good as the building.

### SECT. 3.—*Cottages.*

IN the low rich country they are commonly built of what is called *stud and mud* ; the stud-pieces as large as a man's arm.

At Brothertoft 29 cottages of brick and slate, have been built in one regular front by Mr. Cartwright.

8 of which the rooms are 12 feet square.

8 - - ditto 12 by 14.

8 - - ditto, 12 by 16.

4, 12 feet by 12.

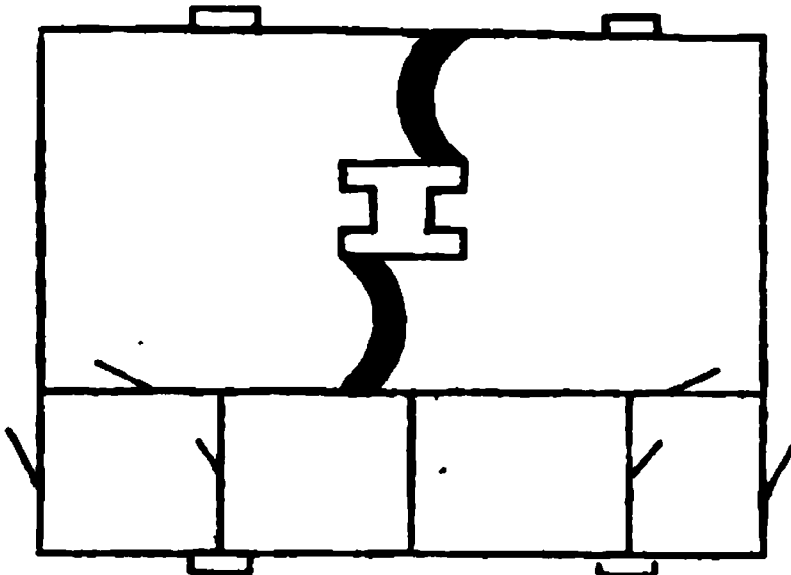
1 centre one, of three rooms on a floor, 2 of 12 feet square, and 1 of 12 by 18, besides the bow.

All have a pantry 6 ft. wide, and a necessary and pigsty, with a small back-yard for coals and wood, and a small garden in front. The whole cost building £2538. 15s. 2d. : would let for, free from the manufacture of woad, £3. each, on an average.

There has been around Folkingham many new inclosures made by act of Parliament, upon which occasion a proper attention has been paid to assigning to every cottage at least three acres of land, including a garden, upon which, for the most part, they keep a cow, and are much better labourers for it. In that of Osbornby I saw these plots.

They will, at Frieston, build a cottage of stud and mud for £30. Mr. Linton shewed me four he had built, two-

and-two ; one set of stud and mud, and thatch ; the other of brick and tile ; the two former cost £40. the two latter, £60.



Each cottage consists of a room below and a room above, the entrance is into a small room for washing any thing, a sort of common open store room, by this means the keeping room is much warmer than if the house door opened directly into it ; the other room is a little dairy, in which also the beer is kept. By the staircase being reversed, as in the plan, each cottage has a closet under his neighbour's staircase.

At Reevesby, &c. a brick cottage for two families will cost 80 guineas ; and the smallest sort, for one family will cost £50. Of stud and mud, one third less. There are many new cottages built, and especially in the new inclosed Fens ; sometimes land is leased on contract for building them.

## CHAPTER IV.

## OCCUPATION.

SECT. 1.—*Farms and Farmers.*

IN the Holland fen from 100 to 400 acres the large class ; but many very small.

About Folkingham they are from 100 to 400 acres, the general size.

On Lincoln heath side, along the cliff, and across to the fen on the other side, they vary much, but in general are moderate ; £ 400. a year, very large.

About Hackthorne, for some miles in the new inclosed lands, from £ 40. to about £ 200. but some much larger ; at Riseholm one of 1600 acres, a beautiful one, well managed by Mr. Moody.

At West Keal, near Spilsby, about 60 tenants pay £ 1330. ; but said to be worth much more.

North of Lincoln, on the Heath, the variation from 50 to 200 and £ 300. and some few much larger.

About Gainsborough and Knaith they are small ; £ 200. a year is large.

In the north-east angle, on the east of the Trent, they are in general large ; from 200 to £ 500. Some small, and too small in the opinion of well informed men ; as the farmers now can scarcely bring up their families.

At Wintringham, on one of the richest soils in England, farms rise from 200 to £ 600. a year.

On the Wolds, farms are in general large ; from the nature of the country they can hardly be small. From 500 to 1000 acres, about Brocklesby.

About Louth the same; but Mr. Grant rises much higher, and is said to have paid near £3000. a year rent for many years.

About Spilsby farms are from £100. to 500.

In the manor of Reevesby, all inclosed, there are 62 farms for the rental of £1397. being the rent of 3401 acres; this vast division of farms arises from a determination in Sir Joseph Banks not to distress the people by throwing them together, by which he loses much in rental, and sees a property ill cultivated; and which must be the case, till by deaths he can gradually, but very slowly, improve it. In the following estates, also belonging to him, the same humanity operates. In Marum, 399 acres of old inclosures, and 82 of field land, 481 in all, rent £276. from 29 tenants. In Horncastle, 497 acres, £765. from 52 tenants. Fulstow, £378. from 14 tenants. Marsh-chapel, £701. from 13 tenants; in this estate one of £319.

By taking the acres and rental of a part of the estate of Sir Joseph Banks in Lincolnshire, being something more than the half of his property in that county, I found that 268 tenants of land pay £5721. per ann. which is something under £22. each, on an average. The largest farm on the whole estate is £319.

The farms adjoining the Fens are generally small, the largest not more than £200.; but with some exceptions a few of £300.; the greatest part from £30. to 100. The Wold farms, part white marly clay, and part chalk, are from £200. to 500. a year; there is a necessity for those hills being in much larger occupations than the lower country. When it was let in smaller farms they could not manure those hills so well, and the turnip culture has thriven only in the hands of the larger ones.

In the hundred Skirbeck they are very small, but few exceeding £100. a year. Several lands are occupied by

Wold farmers, for the purpose of maintaining the stock bred upon the hills, for which purpose they will give higher rents than others.

Farms about Sudbrook, inclosed in 1766, from 50 or 60 acres, to 400 or 500. At some distance larger. Mr. Moody's, at Rischolm, one of the largest in the country, 1400 or 1500.

Upon the size of farms in general in Lincolnshire, it may be very safely asserted, that they are moderate. The number of large ones bears no sort of proportion to those which are very small. And where both extremes are excluded, the size will be found much under what is common in many other counties. Farms of £20. or 30. a year, though a few may be useful in some cases, as spurs to the industry of saving labourers; yet these instances will occur much more seldom than is commonly supposed. Upon a great estate minutely divided, Sir Joseph Banks would have very rarely an opportunity of placing such a labourer in a farm, without turning out some widow or son of a deceased tenant; so that in districts where these little farms greatly abound, they do not operate in this respect in any thing like the degree that has been stated by various writers. And it should further be considered, that as the occupiers of them are incomparably less at their ease, yet working much harder than labourers, it is much to be questioned, whether the mass of human happiness is not considerably lessened by such occupations. As to the effect of them on the cultivation of the kingdom, no doubt can be entertained of its evil tendency; and I have had very many opportunities of remarking it in the course of my journey through this county.

As to the character of the farmers who have occupations sufficiently large to be met with at the most respectable ordinaries, or whose exertions had occasioned their being named to me as men proper to call upon, I can

dispatch my account of them in very few words ; I have not seen a set more liberal in any part of the kingdom. Industrious, active, enlightened, free from all foolish and expensive show, or pretence to emulate the gentry ; they live comfortably and hospitably, as good farmers ought to live ; and in my opinion are remarkably void of those rooted prejudices which sometimes are reasonably objected to this race of men. I met with many who had mounted their nags, and quitted their homes purposely to examine other parts of the kingdom ; had done it with enlarged views, and to the benefit of their own cultivation. And the great energy at present exerted in consequence of the introduction of the new Leicester sheep ; by some to spread that breed, and by others to improve their old race, will not only have excellent effects, but has set them to think upon all other sorts of stock. It has diffused an activity and a vigour, which will shew itself gradually in many other objects. The rapidity with which the culture of turnips has spread, and the manner in which they are cultivated ; and the immense drainages, which having opened new fields of wealth to landlords, have given opportunities to the tenantry neither lost nor neglected, are proofs also of the vigour with which these men have conducted their business. But without descending to particulars, and viewing only the general rise of rent in the county, we may be convinced that such a spectacle could not have taken place, but with a tenantry such as I have described.

#### SECT. 2.—*Rent.*

IN this article it would conduce to clearness were the notes easily arranged under the same heads as the acreable contents of the country, respecting soil and situation ; but much intelligence having been procured from the same

persons relative to very different districts, to divide such articles would not only occasion many repetitions, but the reader would lose the authority in many cases; a point in such Reports as the present, of the first consequence. My authority personally cannot be what the reader wishes; but that of persons who, from long residence and extent of knowledge, must be acquainted with facts, stands in a very different predicament—it is easy to trace every article to its source; a satisfaction of much more consequence than an arrangement somewhat more agreeable.

From Wisbeach to Spalding, average rent 30s. an acre. Long Sutton Common, lately inclosed, 30s. to 50s. About the latter, more low and fenny; but much rich, and where corn, &c. good. Commissioners valuation of Moulton, the whole parish 18s. to 20s. an acre. From Spalding to Boston 30s. In fifty years, rent and tithes have been doubled, on some estates trebled.

In Holbeach, Sir Joseph Banks has 1478 acres, rent £987.; tithe £135. and dikegrave's rates £49. deducted; net rent £804.; but greatly improveable. In Fleet, he has also 678 acres, rent £498.; tithes £56. and dikegrave £22. deducted, net rent £419. In Whaplode, 836 acres, rent £500. tithe £50. and dikegrave £27. deducted, net rent £422. In Moulton, 130 acres, rent £73. tithe £10. and dikegrave £14. deducted, net £58.

Seventeen acres in Wiberton, inclosed under the Holland fen act, that never had been either ploughed or pared, sold lately for 1200 guineas, more than 70 guineas an acre.

Mr. Senderson sold four acres of copyhold, at the will of the lord, for £80. an acre.

The 17th December, 1793, the following farms were let by auction in Wildmore fen.



Acres.	Old Rent.			New Rent.	per Acre.		
	£.	s.	d.		£.	s.	d.
100	70	0	0	165	1	13	0
67	30	3	0	94	1	8	0
100	80	0	0	165	1	13	0
119	95	4	0	175	1	9	4
28.2	19	19	0	26	0	18	5
101.2	53	8	9	145	1	8	8
98.2	61	11	3	160	1	12	7
244	190	0	0	430	1	15	4
56	81	4	0	100	1	15	8
50	46	5	0	86	1	14	4
100 } 50 }	86	5	0	{ 160 75	1	12	0
					1	10	0
100	100	0	0	170	1	14	0
<hr/>							
1214	914	0	0	1951	1	10	2½
	0 15 0 per acre						

No tax, tithe, or rates to pay.

Let under the Witham act of drainage for a great tract, including Holland fen, in 1762; tax 1s. an acre on Wildmore fen, if inclosed; 4d. if not; these 1200 acres inclosed and let to pay that 4d. over the whole.

The eleven parishes of Holland fen contain 22,000 acres, and let for about 27s. an acre, tithe free, but pay a drainage tax. Before the drainage and inclosure, it was worth not more than East, West, or Wildmore fens, at present, that is nothing at all.

In nine years the rent of land in the low land district has been raised 6s. 6d. an acre, except in some instances, in which proprietors have not taken the same advantages as others have done: all might have been so.

The parish of Ewerby is an extraordinary instance how little the value of land was known some years ago in this county; Mr. Tyndal purchased 1300 acres, much of it

very rich grazing pastures, for £13. an acre, and has been offered £40. an acre for large tracts of it; the whole would sell now probably for above £30.

Around Folkingham, for five miles every way, the average 18s.; that is from 25s. down to 12s.

For five miles round Sleaford, 20s. an acre.

Seventy-five acres of land in Ancaster Valley, with a house that wants such considerable repairs as to reduce that consideration to a matter of no great importance, sold lately for £7000. Suppose the land worth 40s. an acre, and the price thirty years' purchase, it would be only £4,500.; what it was that occasioned apparently so enormous a price, I could not learn.

Rent, five miles round Belton, town inclosures at Grantham for convenience excluded, 18s. an acre.

From Folkingham to Grantham, 16s. an acre; Heath part, 7 and 8s.

At Leadenham, the Heath land, the only arable, as below the hill all is grass, at 20s.; the rent is 10s. Quadrupled in 20 years every where about Leadenham, "in all this country." An estate of £900. a year become £4000. Dr. Ellis's father let a farm for £13. a year, which is now £100.

About Blankney, &c. land sells at thirty years' purchase; some has been sold at 50; and at Nainby, at 40.

Rent of all that was Lincoln heath, 10s. an acre on the average. Rent of all the Wolds in the north-eastern part of the county, 8s.

West Keal 1800 acres, arable 682; grass, 1021, besides the rector's glebe; above 200, let at £1330. but worth more.

Hackthorne and vicinity, for some miles new inclosures, 10s. an acre now; the lower tracts something higher, but Hanworth is chiefly grass, and lets at 13 or 14s. tithe free, the tenants pay land-tax, this not general.

The whole of the Heath north of Lincoln, from 8s. to 12. or 14s. Some higher.

About Spilsby the Wold land high, to 15s. and more ; near Horncastle good. About Louth, low, in general from 3 or 4s. to 10s. An estate of 2000 acres in the Wolds, 6s. 8d. an acre, but there is a warren.

About Norton, &c. land now sells at 28 years' purchase ; it was before the American war, upwards of 30. but land-tax deducted before calculation.

The line of sand which extends twenty-five miles from Gainsborough to Newark, lets at 15s. an acre in many places ; in some more, in others less ; and the tract of flat land below it, on the Trent, whether grass or arable, at 20s. to 30s. ; but the average nearer 20s. Behind the sand is a tract of cold wet clay, on which much open field ; this lets at 10 or 12s. an acre. It lies longitudinally between the sand and the good land below the Heath.

At Haxey, in Axholm, 45 to £50. an acre, open field ; but a close is worth £10. an acre more than the same quality open.

At Butterwick in the Isle, the land is very fine and fertile ; the best lets from 30 to 40s. and sells up to £80. the chain acre.

At Garthorpe, fresh land is let by Mr. Curtis in large quantities to break up, at £3. 15s. an acre, for fourteen years. Land in general here sells from £40. to £70. an acre.

About Normanby, Burton, and the parishes named in the article, *Soil*, the sand lets at from 6s. to 12s. ; in some cases tithe free, in others not ; but more at 6s. average perhaps 8s. ; there is some so low as 3s. ; the best 15s. tithe free. Winterton, arable and convertible, 18s. to 21s. Roxby is worth 15s. All down to Messingham very low rents, and yet the farmers very poor ; horridly managed ! At Burton a farm that was £90. a year, and little made

by it, is now £300. in the hands of a man that is growing rich. Rise of rent in 20 years has been the half of the old rent, the third of the present. Average of all flats on rivers, from Ancholm to Burringham Ferry 22s. or 23s. ; of this, Wintringham the best by far. Flat of the Ancholm to Brig, 21s.

Rents in some few estates fell in the American war, but not general.

Alkborough, all through, 15s. tithe free, Mr. Goulton's; the rest of it 20s. Whitton is 14s. 6d. tithe free.

Goxhill marshes sell at 15 to £30. East Horton open 3 roods measure, 8 to £10. arable. Hillingholm 15 to £20. an acre.

Rent of Barrowfield open, 7s. to 12s. ; going to be inclosed.

Wintringham is a lordship particularly interesting from the excellence of the land. It is at present about £4200. a year. As many vague and very false reports have been circulated about the rent of this estate, it will not be improper to specify the fact, which is as follows :

120 acres of warp land, old grazing ground, allowed to be ploughed up, at £5.	-	£. 600
80 of marsh ditto, at £2.	-	160
30 of ditto new, at £3.	- . -	90
183 at £2.	- : -	366
2040 at 30s.	- - -	3060
<hr/> 2453 Total	- - -	<hr/> £. 4276

I may venture to assert, that this estate, under the existing circumstances of tithe and poor rates, is well worth 40s. an acre, one with another, supposing prices of all products to be at a fair average rate.

It appears that the whole is at present under 35s. ; and

it is to be noted, that all is tithe free, and that poor rates amount to a mere trifle.

At Brocklesby, by means of the noble possessor of so large a tract of country, I made inquiries into rents, and was informed that the average of all the Wolds, as marked on the map, is about 5s. an acre. That the line of what is called *the Clays*, between the Wolds and the Marsh, is at 10s. 6d. to 12s. That the Marsh is from 20s. to 25s.; some at 40s.

In riding over Grassby open field, and observing miserable crops, and horrible management, I inquired the rent, : 9s. or 10s. The land is good, and therefore such beggarly doings are terrible : the farms are small.

At Belesby, inquiring rents in general, found that the Wolds vary from 2s. 6d. to 25s. The Middle Marsh, as it is called, that is, the line of clay, 20s.; the Marsh 21s.

It is seldom that a proper opportunity occurs of calculating, with propriety, what ought to be the rent of land ; but at Humberston something of this sort did happen ; I found the tenants of that lordship thought they paid too much, and desired them to prove it ; how to do that they did not altogether know, except by those vague assertions, which farmers, for want of regular accounts, or rather of regular ideas, are apt to be deficient in. However, I drew from them the following particulars, which are all their own. The rotation they are bound to by lease is 1 fallow, 2 wheat, 3 beans.

<i>Expences.</i>		<i>£. s. d.</i>		
Fallow 4 ploughings	-	1	0	0
Manuring	-	0	16	0
Seed 10 pecks wheat, at 40s.		0	12	0
Sowing	-	0	0	6
Carried forward		£.	2	8 6

	£.	s.	d.
Brought forward .	2	8	6
Reaping - -	0	10	6
Leading, stacking, and thatching	0	6	0
Thrashing 2½ qrs. -	0	7	6
Carrying to Grimsby -	0	2	6
Beans. One ploughing -	0	5	0
Harrowing - -	0	2	6
Seed, 4½ bush. at 20s. - -	0	11	3
Sowing - - - -	0	0	6
Mowing, gathering, and tying	0	7	6
Leading, &c. - -	0	6	0
Thrashing 3 qrs. -	0	4	6
Carrying out - -	0	3	0
Tolls on two crops -	0	1	0
Poor rates three years (no tithe)	0	3	6
	<hr/>		
	5	19	9

*Produce.*

Wheat 2½ qrs. at 40s. -	5	0	0
Beans, 3 qrs. at 20s. -	3	0	0

Straw—nil	8	0	0
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Produce	8	0	0
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Expences	5	19	9
----------	---	----	---

Remains	2	0	3
---------	---	---	---

On such an account the question is, what ought to be the rent of the land? I think the fairest mode of calculating is to give the tenant 12 per cent. on a fair capital, and leave the rest to the landlord for rent. Call capital £5. an acre, 12 per cent. is 12s. or 36s. for three years :

The above remainder	£.	2	0	3
Farmer's profit	-	1	16	0
<hr/>				
Landlord's rent, 3 years		0	4	3
<hr/>				
or per acre per annum		0	1	5
<hr/>				

But the curious circumstance is, that they actually pay 17*s.* an acre for the land of which they gave me this account. Fritter down the capital to £4. or even to £3. the conclusion would be the same. If the account is corrected to something more reasonable in produce, according to the quality of the land, and altering the prices a little, it will stand thus, for I do not think the expences over-rated.

			£.	s.	d.
3 quarters of wheat, at 44 <i>s.</i>	-		6	12	0
Straw	-		0	5	0
3 quarters of beans, at 24 <i>s.</i>	-		3	12	0
Straw	-		0	5	0
<hr/>					
			10	4	0
Expences	-		5	19	9
<hr/>					
Remains	-		4	5	3
Farmer's profit	-		1	16	0
<hr/>					
Landlord's rent	-		2	9	3
Per acre per annum	-		0	16	5

Hence it appears that they cannot complain of being over rented ; but calculate upon, 1. fallow ; 2. wheat ; 3. clover ; 4. beans ; 5. wheat. ; and then see what the result will be ! and whether they will any longer complain of 17*s.* or even 20*s.* for such land. If they do not

know how to make 5s. for two loads of straw, the quantity produced! it is time they should be instructed. I can believe their beans do not produce much more than three quarters, from what I saw in a favourable year; but all broad-cast, and no hoeing, no weeding; a marvellous exhibition of every sort of luxuriant weed.

Rents about Louth on the Wolds are various; but in general from 3s. 6d. for warrens, to 20s. for the better soils; in general, if an average could be drawn, it would probably be about 8s. or 10s.

To Saltfleet across the Marshes, open arable 12s.; grass of inferior quality 20s.; Marshes 30s. to 40s. and the same to Sutton, and thence to Alford. The late Mr. Chaplin's Marshes at Skidbrook sold up to £. 77. an acre. Thirty-four acres at £. 34. a year, and not worth more, sold, in September, 1797, at £. 1160: all small parcels of land in the Marshes sell at high rates; this is very near thirty-five years' purchase.

A good deal of rich Marsh of Burgh, Croft, Wainfleet, Winthorpe, Adlethorpe, let at 40s. an acre.

For five miles round Dalby, land lets at 15s. much at 18s.

Rent of all the Wolds from 8s. to 10s. Of the Clays 14s. or 15s. Of the Marsh 14s. to 40s.; average 21s.; tithe excluded in all.

Rent of arable in the hundred of Skirbeck,—consisting in part of ancient inferior pasture, broke up and continued in tillage for many years, rent about 26s. and some in open or partially inclosed fields, the rent about 19s.; for that of the grass, see GRASS.

Sir Joseph Banks's property—

Reevesby, 3401 acres,	rent £. 1397
Marum 481 do.	do. 276
<hr/>	
3882 or 8s. 6d. per acre	1673

E



Rents on the Wolds, the barren parts partly under rabbits, let at 8s. to 10s. The convertible parishes, part in arable, and part in pasture, from 12s. to 18s. Altogether 12s. on an average. Between the Wolds and Lincoln Heath and the Witham Fens, a heavy clay earth, a small part of very good feeding ground for oxen and sheep, and a much larger part appropriated to breeding oxen and sheep ; some meadow, and very subject to rot in wet seasons ; each farm a proportion of arable for wheat and beans with fallow, as too dirty for turnips in their opinion ; average of the whole 14s. or 15s. The Marsh from Sutton to Wrangle, the best 36s. average ; the second rate 26s. ; the ings 18s. ; and the open field arable 12s. ; the partially inclosed 21s. ; the open meadows, &c. 16s. ; all Holland Fen at 25s. ; much at 21s. : these are the rates of the estates of great men. Between Deeping Fen and Lincoln Heath a tract of clay ; from Sleaford to Grims-thorpe much good soapy clay ; and some red hazel earth of inferior quality, average 21s. Between Notts and Lincoln Heath, from Glentworth to Lincoln, including to Trent ; the Cliff-Row towns, from Spital to Lincoln, average 15s. being four sorts ; a very light weak creech stone, 6s. ; next 12s. ; next 21s. being creech stone mixed with clay, on a rock. Next line below the hill good pasture, at 20s. Next cold clay, pasture, and meadow, at 14s. Trent side land, part very rich, and some sand, average 20s. The range of Cliff towns from Lincoln to Grantham consists of three ranges of land like the above, and same rent ; but the best creech land on the hill top, worth 23s. Lincoln Heath, in two lines east and west ; the east side from Thorpe to Canwick 6s. ; the west at 8s. ; the Heath, north of Lincoln, 6s. The Isle of Ax-holm, and the Marsh land 26s. ; although many small freeholders, who let to one another at from 40s. to 3 or £. 4. for particular crops. From Spalding to Tidd, north

to the sea, south to Cambridgeshire. In all this level, the high land being chiefly rich feeding ground for sheep, and some parts beasts; but, being indifferently watered, in dry seasons is uncertain consequently for the latter; average 30s. The Marshes, anciently embanked, part light silt or sand, and part indifferent for breeding, suitable for wethers brought from the Wolds and the high country, fed off at three years old, gives good and much wool; average 10 to 20s. The Fen side not effectually drained; a good soapy clay, rent average 12s. If well drained, cheap at 21s.; as good as Holland Fen. From Spalding to Boston, both sides, best, 36s. good feeding, some part indifferently watered; second rate 26s.; third rate, poor silt, 20s.; Spalding to Deeping, the embanked land well drained, 21s.; inclosed black peat, very rich, 21s. The open commons do not pay more than 2s. 6d. Thus far Mr. Parkinson.

Rents for some miles round Sudbrook, and to Wragby 16 or 17s. an acre. To and about Hamton 20s. Mr. Ellison bought Toft and Newton in 1785; 2000 acres let for £. 737. he gave £. 19000. and £. 2000. in buildings, &c.; and it is now let at £. 1160. net rent. It therefore pays above five per cent.

Mr. Gibbeson's farm near Lincoln, twenty years ago, was £. 30. a year; it is now £. 300.

Mr. Jennison of Lincoln has a farm at Ludford, which was let at £. 25. a year, when the tenant could not pay the rent; it is now £. 100. and the farmer does well.

For five miles round Claypool every way, rent 20s. an acre; would be worth more, but they are much subject to floods, which rot many sheep.

Rent of the country west of the north road at Grantham, &c. 20s.

Grantham to Closterworth, hilly, 16s.

Thus the average rent of the whole county appears to be 16s. 9d. per acre.

Uniting the information gained under this head, concerning the rise of rent, with that which appears in the chapter of inclosures, there is some reason to believe this rental to have been trebled in thirty years.

### SECT. 3.—*Tithe.*

IN the new inclosures about Folkingham exonerated by giving land.—In Osbornby one-seventh of the whole. In some one-fifth of the arable, and one-ninth of the pasturage.

All gathered at Haxey in Axholm. About Normanby, Burton, &c. some are gathered, some let—4s. in the pound was not an uncommon composition.

About Spilsby they are seldom taken in kind, but the compositions high; arable land 5s. grass 2s. 6d. an acre, some lower; but in general 3s. 6d. or 4s. an acre round.

There are in the county about six hundred and sixty pieces of preferment, including perpetual curacies and donatives, which are on an average about £. 70.

In the hundred of Skirbeck tithe of pasture about 3s.; acre of arable 5s. to 6s.; new broken up land for a few years 10s. A small modus generally prevails for the tithe of hay of 2d. an acre.

About Sudbrook, compounded at 2s. or 2s. 6d. an acre.

Mr. Parkinson—the tithe of pasture is worth one ninth of its improved rent, which he proves thus; produce two lambs, on an average of twenty-one years, at 12s. or 24s., two ewe fleeces at 4s. or 8s.; in all 32s.; deduct for loss one eighth, remains 28s.; the tenth of which 2s. 9½d.; deduct for gathering one third, remains 1s. 11d.;

call it 2s. The tithe of meadow one seventh, and one eighth of inferior quality. That of rich grazing one ninth of the rent. Of arable, the best one fifth of the rent, and the inferior detached one sixth and one seventh, according to circumstances. Approves of the Bishop of Lincoln's tithe ; for the present mode of taking it is such an impediment to improvements, that his corn rent is much better : the rector often cannot cultivate or stock it, and this prevents the necessity. Woods exempted, because from a very ancient custom, all stand from twenty-one to twenty-three years.

*Mr. Parkinson's Estimate.*—Average tithes of the county is one-fifth ; best arable one-sixth, inferior one-seventh ; best meadow one-eighth, inferior one-ninth ; pasture makes a mean of land 1 acre at 14s. the mean proportion one-sixth to 2s. 4d.

Do. 21s. per acre, do. one-sixth - 3s. 6d.

Do. 28s. per acre, do. one-sixth - 4s. 8d.

Do. 35s. per acre, do. one-sixth - 5s. 10d.

I found throughout the county a very general desire that some law should pass for the commutation of tithe. The farmers here, with their brethren in every other part of the kingdom, consider this as one of the heaviest of obstacles to good husbandry. There can be no question of the fact, and it is not a fair argument, on the other hand, to recur to the vast rise of rent, in consequence of a superior husbandry, which has taken place in this country. Encouraged by great capitals, and the general liberty and happiness enjoyed by the nation, agriculture has made a vast progress ; but this progress would have been much greater had tithe been generally commuted. And it much deserves attention, that in this county inclosing and draining, which have flourished, perhaps, more than in

any other, have established an exemption from tithe over a very considerable portion of the whole ; and that consequently much of the prosperity and rise of rent and improvements effected, may very fairly be attributed to this very circumstance.

#### SECT. 4.—*Poor Rates.*

IN Holland Fen low ; in some parishes very low, even to 1s. and few high.—Quere, poor rates in Northolm near Wainfleet 24s. in the pound, but only fourteen acres in the parish ; this year 50s ? In Swineshead 2s. in the pound, nominal rent. About Folkingham, on an average 1s. 3d. in the pound, real rent. The poor, church, and roads, 2s. 6d. At Hackthorne 9s. a week for the whole parish ; but six or seven keep cows. At Kirton 2s. 2d. in the pound ; at Mr. Harrisson's 1s. ; but now more. At Gainsborough, rates 3s. and will, by the inclosure, be brought down to 1s. 6d. At Knaith, &c. 1s. 6d. At Haxey in Axholm 2s. 6d. ; fifteen years ago 6d. to 8d. In 1795, total in this parish £. 223, land tax £. 267. At Alkborough 9d. At Normanby and Burton 1s. 10d.

At Wintringham about 9d. or 10d. in the pound, and much less, were only the poor reckoned ; on a rental of £. 5 10s. it appears in the article of *Grass Lands*, all amounts only to 3s. ; but they reckon by the acre.

About Spilsby, on an average, about 2s. to 3s. in the pound. Skirbeck hundred, see *Grass Land*.

About Reevesby, &c. &c. they come to 5s. in the pound, including all town charges through eleven parishes on the real rent. They are the lowest on the Wolds, where they do not exceed 3s. In the Fens pretty high, from persons ruined by commonage speculations.

In the hundred of Skirbeck all sorts of town charges 3s. 3d. in the pound ; poor rate only 2s.

At Sudbrook all rates about 4s. in the pound ; but the poor only, on an average, 7d. At Lincoln, 4s.

Uniting these notes with other general information, I am inclined to calculate all sorts of parochial rates at 2s. in the pound, *real* rent, over the whole county. There is no possibility of coming to any thing like accuracy in such an estimation ; as in some parishes where the assessments are said to be on the real rent, it is not so in fact ; and alterations constantly taking place that are unknown. It is much to be regretted that returns are not made to the Board of Agriculture, or the Privy Council, by authority of Parliament, from every county in the kingdom, of the annual amount of rates, especially those for the poor. When first the Minister undertook the great object of the poor, had he proposed a bill simply for the purpose of gaining information (a part of his scheme), it would have been, at this moment, in full operation, and a great basis gained, on which to erect any edifice his great talents might devise : and whenever he may think proper to resume the business, *this* will be the best first step in a work that can only be well executed by gradual advances.

#### SECT. 5.—*Leases.*

VERY few leases in Holland Fen. None at all about Folkingham, except part of the lordship of Pointon, where twenty-one years, under covenants of improvement ; and in consequence of these leases the tenants have wrought very considerable improvements, in converting old bad pasturage into arable, by means of draining ; subdividing, and quicking large fields : in liming the sandy grounds.

No leases on Sir J. Sheffield or Mr. Gouldon's.—Leases on Mr. Eleve's ; but the general practice not to grant them.

No leases on Lord Carrington's estate at Wintringham ; but though the tenants have not this circumstance, they are under covenants of cropping as much as if they had them. On the stronger arable lands they are bound to 1. fallow, 2. wheat, 3. beans. And on Sir J. Sheffield's 1. turnips, 2. barley, 3. turnips, 4. barley, with seeds broken up for turnips again.

Lord Yarborough does not give leases ; but with much candour made the observation, that the principal culture of sainfoin on the Wolds was by men, who either have leases, or farm their own land.

Very few about Spilsby.

In the hundred of Skirbeck they are very unusual.

Mr. Parkinson observes upon this subject, that upon barren lands which demand marl, or that want lime, it is necessary to grant leases, in order to make estates productive. Lord Fortescue grants them on poor weak soils for twenty-one years, on condition that the farmer puts three chaldron of lime, or forty loads of marl or good clay on each acre. In circumstances where no expence of this sort, he does not think them necessary.

Sir Joseph Banks has no objection to granting leases ; but he is never asked for them. Seeing a tenant of his improving his land by hollow draining, he gave him a lease of twenty-one years, as a reward and an encouragement. The idea is an excellent one ; and if they were thus given only to such as merited reward, they would prove a powerful instigation to good husbandry.

Mr. Smith of south Elkington, shewing me two new cottages he had built, his landlord, Mr. James Greenville, finding timber ; and mentioning some other improvements he had made, observed he would do much greater things if he had a lease. The same remark has often been made to me in this county.

Very few leases about Sudbrook.

Respecting the county in general, the fact is that leases are very rare.

Upon the subject of leases, as I wish to avoid all disquisitions which concern the kingdom at large, as much as the county of Lincoln in particular, it will be necessary only to remark, that great as have been improvements in it, I have not the least doubt they would have been much greater and more rapid, had the custom of granting leases been as common here as it is in Norfolk and Suffolk. I had particular conversations with some hundreds of farmers on this subject, and the universal opinion was, that if leases were granted, they would occasion exertions which are not found at present. Upon soils so rich that there is nothing to do, the want of them cannot be material; but upon all others, where liming, marling, draining, fencing, &c. are demanded, the want of a lease will often be the want of the improvement: and the *principle* will pervade the whole conduct of the business; nothing will be so well done upon an uncertain tenure, as with security. Confidence in a landlord attaches to himself only, and not at all to his successor; and the various instances that have occurred of estates being considerably raised, must act as warnings to others. Granting leases would, in this respect of raising rents, ease a landlord greatly; when there is no lease, there is no more reason for raising at one period than another, and when it has been done in Lincolnshire it has usually raised a great clamour. But if leases of twenty-one years were granted, the farmers would, in the first instance, very readily pay an advanced rent, as the price of the lease; and they might be given to understand, that at the expiration the rent would be raised again. Then a rise would be looked for as a matter of course, and no clamour would attend it. Should any landlord be in-



clined to make this very valuable experiment, I would caution him upon one point ; not to lease the farms of an estate at one time ; but give them so in succession, that some might expire every year, when they began to fall in ; which might be easily done by making it a work of five or six years, with a little variation in the duration of the leases. When a few farms in a great estate fall every year, and there is no general operation of *tasting* and *valuing*,—there will be no outcry ; the business will be regular, and the effect smooth and quiet. The landlord will have his fair share in the progress of national prosperity, and his tenants will be secure and active.

As to covenants, a landlord would not sign leases without consulting some person upon this head, on whom he could well rely.

#### SECT. 6.—*Expences and Profit.*

THE rich land of Holland Fen I found so interesting and so fertile a district, that it was natural to wish to ascertain how far the advantages and disadvantages balanced each other, and what was the profit of cultivation upon comparison with other districts of similar fertility. To calculate this, let us take the course of crops at present practiced by that very attentive cultivator, Mr. Cartwright, with no other addition than that of a crop of wheat after the clover, to bring Lincoln and Suffolk a little nearer in system. The course will then stand thus: 1. Cole. 2. Oats, 3. Beans, 4. Wheat, 5. Clover, 6. Wheat.

	<i>Expences.</i>	<i>1. Cole.</i>		<i>£.</i>	<i>s.</i>	<i>d.</i>
Rent and taxes	-	-	-	1	16	0
4 ploughings, at 5s.		-	-	1	0	0
				<hr/>		
Carried forward			-	2	16	0

# OF LINCOLNSHIRE.

61

£. s. d.

Brought forward	-	-	-	2	16	0
Harrowing and rolling	-	-	-	0	12	9
Clearing twitch	-	-	-	0	5	0
Seed and sowing	-	-	-	0	1	6
Gripping	-	-	-	0	1	6
Manure	-	-	-	2	0	0
Incidents	-	-	-	0	5	0
				<u>6</u>	<u>1</u>	<u>0</u>

Expences	-	6	1	0
Produce	-	2	10	0
		<u>3</u>	<u>11</u>	<u>0</u>
Loss	-			

## 2. Oats.

Rent, &c.	-	-	-	1	16	0
One ploughing	-	-	-	0	5	0
Seed and sowing	-	-	-	0	14	0
Harrowing, &c.	-	-	-	0	2	6
Gripping	-	-	-	0	1	6
Weeding	-	-	-	0	7	6
Harvesting, reaping	-	0	12	0		
carrying	-	0	6	0		
				<u>0</u>	<u>18</u>	<u>0</u>
Thrashing and dressing 8 quarters	-			0	6	8
Carrying out	-	-	-	0	2	6
Agency	-	-	-	0	2	0
Incidents	-	-	-	0	5	0
				<u>5</u>	<u>0</u>	<u>8</u>

## Produce.

8 quarters, at 18s.	-	-	7	4	0
3 acres feed a beast for 20 weeks ;					
straw, at 1s.	-	-	1	0	0
			<u>8</u>	<u>4</u>	<u>0</u>
Expences	-	-	5	0	8
			<u>3</u>	<u>3</u>	<u>4</u>
Profit	-				

£. s. d.

3. *Beans.*

Rent, &c.	-	-	-	1	16	0
Ploughing, twice	-	-	-	0	10	0
Harrowing	-	-	-	0	1	0
Gripping	-	-	-	0	1	6
Seed, 2 strike	-	-	-	0	6	0
Drilling	-	-	-	0	0	9
Horse and hand hoeing and weeding	-	-	-	0	16	0
Reaping	-	-	0	10	0	
Bands	-	-	0	2	0	
Carrying	-	-	0	6	0	
				<hr/>	0	18 0
Stack and thatch	-	-	-	0	3	0
Carting to barn	-	-	-	0	2	0
Thrashing	-	-	-	0	5	0
Carrying out	-	-	-	0	1	6
Agency	-	-	-	0	1	0
Incidents	-	-	-	0	5	0
					<hr/>	5 6 9
<i>Produce.</i>						

5 quarters, at 24s.	-	6	0	0
Straw	-	0	5	0
		<hr/>	6	5 0
Produce	-	5	6	9
		<hr/>		
Profit	-	0	18	3

4. *Wheat.*

Rent, &c.	-	-	-	1	16	0
Scuffle, rake, and burn	-	-	-	0	10	0
Ploughing	-	-	-	0	5	0
Harrow and roll	-	-	-	0	3	0
				<hr/>		
Carried forward	-			2	14	0

OF LINCOLNSHIRE.

63

				£.	s.	d.
	Brought forward	-		2	14	0
Seed, 2 strike, 6s.	-	-	-	0	12	0
Drilling	-	-	-	0	0	9
Gripping	-	-	-	0	2	0
Hoeing twice	-	-	-	0	4	0
Weeding	-	-	-	0	2	6
Reaping	-	-	0 12 0			
Carrying	-	-	0 6 0			
Thatch and stack	-	-	0 3 0			
				1	1	0
Carting to barn	-	-	-	0	1	6
Thrashing 4½ quarters, 3s.	-	-	-	0	13	6
Carrying out	-	-	-	0	1	6
Agency	-	-	-	0	1	0
Incidents	-	-	-	0	5	0
				5	18	9
<i>Produce.</i>						

4½ quarters, at 5s. 6d.	-	9 18 0
Straw	-	1 1 0
		10 19 0
Expences	-	5 18 9
		5 0 3
Profit	-	-

5. Clover.

Rent, &c.	-	-	-	1	16	0
Seed, 14lb.	-	-	-	0	10	0
Sowing	-	-	-	0	0	3
2 pecks ray	-	-	-	0	2	0
Mowing	-	-	-	0	3	0
Making	-	-	-	0	3	6
				2	14	9
Carried forward				-		

				£	s.	d.
			Brought forward	-	2	14 9
Carting	-	-	-	0	6	0
Stacking and thatching	-	-	-	0	3	0
Incidents	-	-	-	0	5	0
<i>Produce.</i>					3	8 9
2½ tons, at 40s.	-	-	5	0	0	
After-grass	-	-	0	15	0	
			5	15	0	
Expences	-		3	8	9	
Profit			2	6	3	

6. *Wheat.*

Rent, &c.	-	-	-	1	16	0
Ploughing	-	-	-	0	5	0
Harrow and roll	-	-	-	0	3	6
Seed	-	-	-	0	12	0
Drilling	-	-	-	0	0	9
Gripping	-	-	-	0	2	0
Hoeing and weeding	-	-	-	0	6	6
Reaping, &c.	-	-	-	1	1	0
Carting	-	-	-	0	1	6
Thrashing 4 quarters	-	-	-	0	12	0
Carrying out	-	-	-	0	1	6
Agency	-	-	-	0	1	0
Incidents	-	-	-	0	5	0
<i>Produce.</i>					5	7 3

4 quarters, at 44s.	-		8	16	0	
Straw	-	-	0	16	0	
			9	12	0	
Expences	-		5	7	9	
Profit	-		4	4	3	

*Recapitulation.*

					£.	s.	d.
Cole, loss	-	-	-		3	11	0
Oats, profit	-	-	3	3	4		
Beans, ditto	-	-	0	18	3		
Wheat, ditto	-	-	5	0	3		
Clover, ditto	-	-	2	6	3		
Wheat, ditto	-	-	4	4	3		
			15	12	4		
			3	11	0		
			6)	12	1	4	
Profit per acre, per ann.	-		2	0	2		

In discourse at South with some considerable farmers upon their extraordinary course of crops of, 1. Turnips, 2. Barley, and urging that a more profitable system might be pursued, they defended it, and asserting the benefit, I desired to calculate it, which we did thus :

<i>Expences.</i>				£.	s.	d.
Three or four ploughings for turnips	-			1	0	0
Manuring 12 waggon loads once in four years,						
the half	-	-	-	1	0	0
Harrowing	-	-	-	0	2	6
Seed and sowing	-	-	-	0	2	0
Hoeing	-	-	-	0	5	0
Herdling, herdles, &c.	-	-	-	0	5	0
Ploughing twice for barley.	-	-	-	0	10	0
Carried forward	-			2	4	6
F.						

			£.	s.	d.
	Brought forward	-	2	4	6
Harrowing	-	-	0	1	0
Seed barley 4 bushels, at 24s.	-	-	0	12	0
Sowing	-	-	0	0	6
Weeding	-	-	0	1	0
Harvesting	-	-	0	7	0
Thrashing 4 quarters	-	-	0	6	0
Leading out	-	-	0	2	0
Two years rent, tithe free	-	-	1	10	0
<u>rates</u>	-	-	0	3	0
					<u>6 7 0</u>
	<i>Produce.</i>				
Turnips, on an average	-	3	0	0	
Barley 4 quarters, 24s.	-	4	16	0	
Straw	-	0	10	0	
		<u>8</u>	<u>6</u>	<u>0</u>	
Expence	-	6	7	0	
		<u>1</u>	<u>19</u>	<u>0</u>	
Profit	-				
		<u>0</u>	<u>19</u>	<u>6</u>	
	per annum,				

This they thought would do ; but some observed, that expences would generally run higher than any such calculation could include ; and that worse land was always a drawback.

The expences of farming near Louth are great ; labour is very high ; and though there is a navigation to that town, yet such is the state of trade upon it, that it generally answers, on account of difference of price, to carry twenty miles to Lincoln by land carriage, where they go with only ten quarters of barley, with four horses ; leave home

at eight at night, and return at eight the next night; the price is sometimes 3s. to 5s. a quarter lower, at Louth.

In hiring and stocking farms, Mr. Parkinson observes, that upon such a farm as is usual in Lincolnshire, to wit, part grass and part arable, so much should be the latter, that the fallow part shall raise turnips, rape, &c. to support the lamb hogs that the farmer breeds, and fatten the two shears; upon such a farm, for each 100*l.* a year he should have a capital of 750*l.* Upon a farm of 300*l.* a year, if a man has not above 2000*l.* he will soon want money.

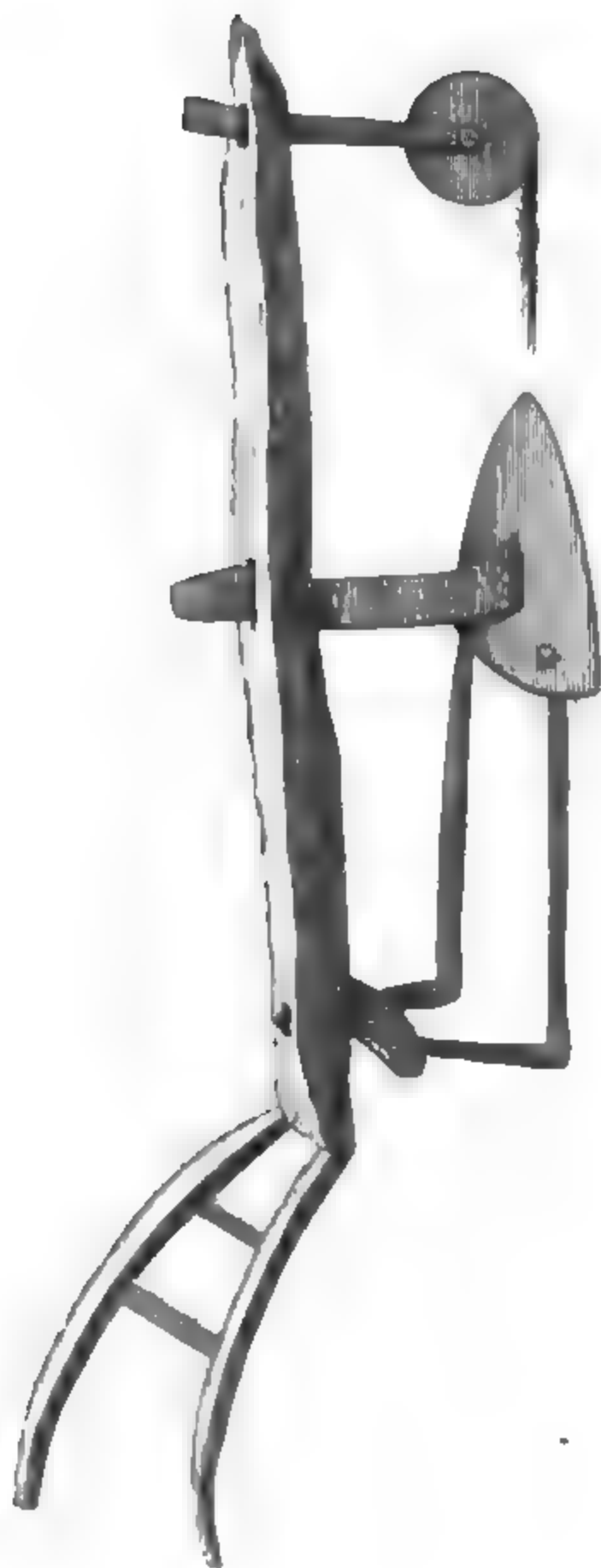
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Under the heads of *Rent*, and *Grass Lands*, the reader will find some other estimates of expences and profit. There are circumstances very favourable to the county in this respect, and there are others extremely adverse. Of the latter complexion is the price of labour, the price of corn, the distance from Smithfield, and the custom of giving no leases. Labour is much higher in Lincolnshire, on the average, than in most other counties of the kingdom; in the Fen district, to a degree that is uncommon; and marks how very much improvements of all other kinds, have exceeded that equally necessary one of building cottages. The price of corn is considerably below the general average, and there is the further disadvantage of a heavy land carriage in many parts of the county. The distance from Smithfield, the rich grazing lands of this county suffer in common with those of Somersetshire: but the West Riding of York is probably as good a market here, as Plymouth, Bath, and Bristol, are to the former: compared with other grazing districts on a large scale, Lincolnshire is remote. The want of leases is a deficiency which is remediable; and probably a better system respecting the management of landed pro-



perty, will improve that point. The circumstances favourable are, first, the soil, which must, on the whole, be reckoned among the first in the kingdom; and extremely bad land is rarely found in the county. To Lincoln eyes, this is not a fact; but they are so accustomed to seeing very good land, that indifferent soils are apt to be undervalued. Another very great advantage, is so large a part of the county being, by acts of parliament, exempted from tithe. A third, is the very low burthen of poor-rates, compared with many other counties. These three essential points will be found to have a considerable effect in influencing the profits of the farmer.





## CHAPTER V.

## IMPLEMENTS.

ON Mr. Cartwright's farm at Brothertoft, there are a great variety of implements of considerable merit. The plough is the common one of the Fen tract, and a most excellent tool it is ; the mould board of a good sweep ; the throat, a segment of an ellipsis ; and the form of the share of great merit, always well steeled and sharpened with files ; the coultter, a sharpened steel wheel ; it much resembles the Dutch paring plough of the Cambridge-shire fens ; deserves attention, and ought to be in the collection of the Board.\* To this plough Mr. Cartwright has affixed a bean drill of great simplicity, for drilling upon the centre of the preceding furrow, while the next is turning ; it answers well, and drills every year a great extent of land, nor does it require previous tillage upon a stubble.

A twitch drag of his own construction, for tearing out twitch, he finds of great use ; he took the hint from one used near Rotherham ; when first he made it, he had a turnip fallow which his bailiff had prepared, and thought

\* The sort of plough here sketched is almost universally used in the fens between Boston and Croyland, its wheel coultter being much better adapted for ploughing amongst stubble and twitch-grass, than the sword one ; they turn all their land over with two horses, double or parallel to each other, and in this business many of them are very clever, and will make their furrow as straight as a line ; and by laying your head so low on the bottom of it, that your sight is confined by the sides, you may see down it to the further end, which is in some not less than a quarter of a mile in length. This extraordinary regularity is done by training their horses in this manner : they fix a piece of wood (pointed at both ends)

clean enough to sow: sending in the drag to try its effect, he got seven cart loads of twitch by this tool; and it is always found, for this use, very effective.

Drilling machines have been tried largely by Mr. Cartwright: he had two of Cook's; but prefers the improvement of Mr. Amos, his bailiff, who claims the original invention, which he now uses. This plough is described with a plate, in Mr. Amos's Treatise on the Drill Husbandry. Another tool, which is found in the same work, and Mr. Cartwright finds very useful and effective, is the expanding horse-hoe for all breadths; used constantly here for beans, cabbages, potatoes, &c.

In carriage, Mr. Cartwright uses one-horse carts for much of his work, and has invented a waggon-cart, which he calls a *cartoon*, the body of which tilts up, and delivers the load like a cart; it is lighter in weight than two carts, and made to contain the same bulk of load: clear width, 4 feet, height, 1 yd. 9 inches, length, 8 feet. Scufflers also are in use at Brothertoft, and found very effective. Mr. Cartwright has long been making experiments on forming a reaping machine, and has been at a great expence in executing them: difficulties have, however, occurred hitherto, which have prevented success. His bailiff, Mr. Amos, has varied the application of the scythes, from being pushed forward by horses, with their heads to the machine, to drawing it laterally. I saw it tried with lucern, but it would not do: and indeed this object, though infinitely desirable, will be found so difficult

between the horses, in an horizontal direction, of about two feet in length, by which means they are kept at such a distance, that the ploughman can see between them to the further end of the land he is about to plough, and is thereby enabled (by fixing his eye upon some object that is stationary) to make his furrow as abovementioned. The points of the stick, when the horses are inclined to move too near each other, remind them of their misdoings.—

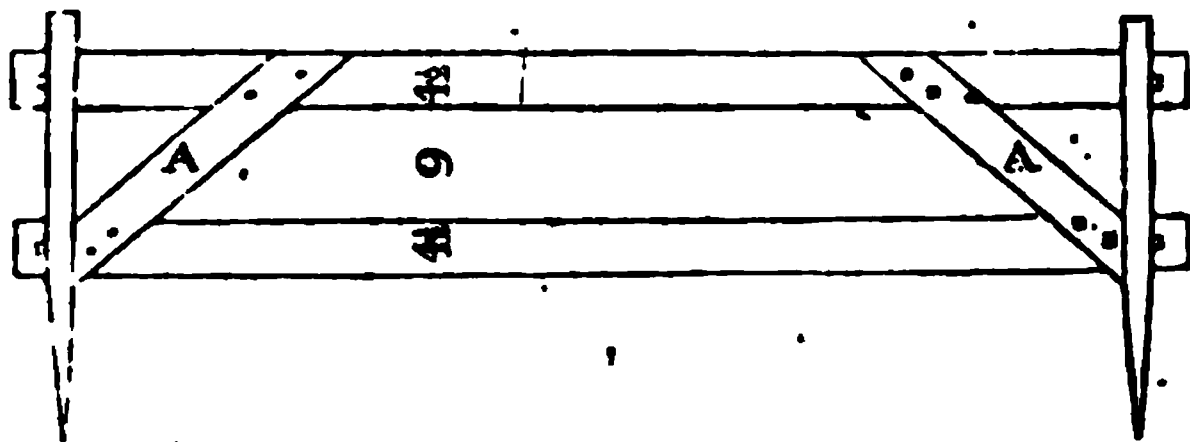
MS. of the B.

to carry into execution, that many experiments will probably be made, before success is attained. A machine for weighing cattle and sheep alive, Mr. Cartwright erected while he pursued grazing, and found it a very useful tool.

Mr. Cook's chaff-cutter is employed at Brothertoft; a man and a little boy cut 100 quarters in a week.

A sward-dresser has been found very useful upon the meadows and pastures of Brothertoft. It includes a scarifier, with a bush of thorns, and cuts deeper or shallower at pleasure; two horses draw it, carrying the breadth of five feet.

Vigilance in the lambing season, prevents much of the danger in bad weather; and a provision against the loss of lambs in the ditches of the breeding pastures, has here been made at a small expence, by means of lamb-herdles, according to the annexed drawing.



The space between the rails to be closed with tarpaulin, whereby the herdle, when the lower rail touches the ground, is a perfect defence against the wind, and of sufficient height to prevent the lambs driving before a storm into the ditches; so that it answers two good purposes. At other seasons, also, these herdles may come into use for guarding the brows of banks against sheep.

As the tarpaulin would require many nails, and

canvas is a dear article, perhaps the space between the two rails may be better filled by a slit deal, held in its place by having braces, AA, on both sides, one of which might be moveable, and fix with nuts on the rivets; by which means the board might be put in only occasionally when wanted.

At Osbornby Mr. Hoyte has introduced the Norfolk wheel plough, which is found to do well on the lighter soils; and Small's plough from Scotland, for the heavy lands; also a surface-draining plough. Mr. Sellsicall of Stoke, near Grantham, has introduced a wheel plough, that goes without holding, for crossing broad high lands at an equal pitch; which is liked better before winter than either gathering up, or splitting down, by reason of every furrow being a drain from the crown to the main furrow. Mr. Hoyte and others have used Cook's drill, but now it is confined to light soils; on stiff ones, well convinced it will not answer.

The double plough (price £ 5. 5s.) is in use at Belton, and does its work well on sand, with three horses; never more than four.

Mr. Webster at Bankside has a small thrashing mill, built by Mr. Parsemore of Sheffield, which cost, the machine itself, £ 33. but complete to him, about £ 50.: it is worked by two horses, and most of the work done by women. The beating wheel is about 18 inches in diameter, and 3 feet 8 inches long, and moves under, and very near to, an almost semicircular coving of cast iron of three plates, fluted and shouldered, which is found to assist much in the operation. It thrashes 60 bushels of beans a day, and six bushels of wheat an hour; clears beans, wheat, and oats to his satisfaction; but barley not equally well, till he added that coving, however well enough to induce him to use it for the little he has had.

Mr. Webster has also Mr. Cook's chaff-cutter fixed to

a very large wheel, in which an ass or a galloway walks ; it cuts 45 to 50 quarters a day. His steaming apparatus for turnips is very complete ; a wine pipe lifts on and off with a crane, and is steamed in two hours.

Mr. Grayburn of Barton has had two thrashing machines, but neither of them well made ; it thrashes clean ; barley exceedingly well, but beans not equally so : was for four horses ; now two, and better ; but in the expence no saving. Has a chaff-cutter worked by a horse, on Cook's principle ; cuts seven quarters an hour. Cost, £ 10. 10s. for the machine. Tried Winlaw's ; but was good for little. Mr. Bourne at Dalby uses the double ploughs with great success ; he works them with a pair of horses, doing, on an average, of all lands, upwards of two acres a day.

Mr. Linton at Frieston has just erected a thrashing mill, the work done by Mr. Hume from Scotland, recommended by the Hon. and Rev. Mr. Lindsey ; it requires 4 horses, cost 100 guineas, thrashes, dresses, rakes off, and cuts chaff at the same time. Mr. Linton is satisfied with what he has yet experienced of its performance ; but has had it too short a time, being hardly finished, to make any particular experiments.

He has also Mr. Nailor's patent chaff-cutter ; two men, before annexing it to the thrashing mill, cut 24 bushels with it in an hour, fine enough for any stock. Price ten guineas. Has also made a twitch rake, containing a double row of teeth ; those of one row against the intervals of the other : it is six feet long, and executes its work to his satisfaction. Cost £ 3.

Mr. Linton uses a drill, and the expanding horse-hoe, made by Mr. Amos of Brothertoft, and approves them well ; but for beans rather prefers a small barrow drill, which delivers into the furrow.

An ingenious and very simple tool, in use in East Fen,



is a sledge for going on the ice; it is a small frame that slides on four horse-bones, the driver pushing himself forward with a pitchfork.

Mr. Curtis of Ashby cum Fenby, falling very short of fodder, set up an ass-wheel chaff cutter, and the effect of cutting was such, that it went twice as far as uncut.

The late Mr. Cod, at Ranby, seems to have been in various respects a very spirited and active farmer. I found there a complete set of Mr. Duckett's implements; and was informed that he had viewed Mr. Duckett's farm, &c. in consequence of the various accounts he had read of his management, in the *Annals of Agriculture*. Here are two skim-coulter ploughs, two drill markers, turnip drills, scuffler, miner, double plough, horse-hoes, &c. and a capital spike-roller, which cost £40. building; also a horse dew-rake, but which had not answered. He not only procured Mr. Duckett's tools, but hiring a man for three years, sent him a twelvemonth to Esher, to be instructed in the use of them: this was doing the business effectually, and much praise is due to his memory on such accounts. In the article *Sheep*, it will be found that he was no less active in another branch.

Mr. Holdgate at Thoresway has erected a thrashing mill, which is worked by water. He has, with a true spirit of exertion, formed a reservoir on the side of a hill, and conducted the water to a very large wheel, in troughs, upon trussle-posts 20 feet high, and a considerable distance; from errors in the construction, it did not perform well, and I found him taking it down for alterations. The drum wheel has eight beaters; and his workman said they were so numerous, to remedy the defect of velocity.

Mt. Michael Pilley of Lincoln has invented a water-cart, to take up a ton, by a valve; it moves on two

rollers, loads itself, and he thinks that the advantage is very great upon new sown turnips, as it discharges clear of the roller, so as not to daub;—and he thinks that if manure was, for this purpose, converted into a fluid, it would, in many cases, be of considerable utility; Another idea he has,—to construct granaries with a double floor, the upper one like a malt-kiln floor; and by pipes to introduce air through the walls, and chimnies to carry it off; this he thinks would tend very much to the preservation of corn.

Mr. William Naylor at Langworth near Sudbrook, has invented and patented a chaff-cutter, which he says will cut a strike a minute; and that two men will cut forty quarters a day, to hold it the day through, the length of a barley corn; but it may be set to that of a grain of wheat; price £. 10. 10s..

Mr. Moody at Riseholm has one of Mr. Parsemore's (of Sheffield) thrashing mills; it cost £. 36. 15s. I have seen so many of these machines, which do every thing well except barley, that I inquired particularly about that grain. I saw it in his absence, when his thrashers gave me an account of it, and they assured me that it thrashed barley cleaner than they could; and did ten quarters a day, with two horses, four men, one woman, and one boy. On returning to Riseholm, when Mr. Moody was at home, he confirmed this account; and informed me that he puts out all his barley to the men at 1s. a quarter, finding horses; but they take it from the stack, and deliver it to the sack. The circumstance upon which the good thrashing of barley depends, is the iron covering under which the beating wheel, having six beaters, moves; this, in Mr. Moody's, is fixed; but the beating wheel admits rising and lowering at pleasure; but a new improvement is to make the iron roof moveable, and the

wheel fixed. This iron is so near to the beaters, that it rubs as well as strikes the grain out.

Mr. Walker of Woolsthorpe, has a thrashing mill worked by four horses, to my surprise, in sight of a fine perpetual stream, large enough to work an hundred mills. It had not worked well, and he was now altering it with additions ; but not that of the semicircular cast iron to close upon the beating wheel, which I advised, and hope Mr. W. will have. The beaters (six) are rounded, which I should suppose inferior to the common flat ones. It thrashed twenty-four quarters of oats in eight hours, and ten quarters of wheat.

The preceding detail is sufficient to prove, that the farmers of this county are alive to improvements, and ready to adopt any new instruments which promise utility. Indeed the general conduct of their business would give reason to suppose this ; and there are, without doubt, many other tools, which will, upon a more minute survey, be found deserving attention.

## CHAPTER VI.

## INCLOSING.

THERE are few instances of the benefit of inclosing commons, greater than that of Long Sutton; the act passed in 1788, by which near 4000 acres of common became *several* property; the rent of it, before inclosing, was £. 1000 a year, or 500 rights, which let the messuages at 40s. each more for the right; the whole now lets from 30s. to 50s. an acre, and about half of it is ploughed. Before this act the old inclosures were subservient to the common, but now the common is subservient to those; and, if all are included in the account, there is now more live stock kept than before, and of a much better kind; though above 2000 acres have been ploughed up to yield an enormous produce.

About Folkingham, many new as well as old parliamentary inclosures, of arable, open, common fields; the improvements by which have been very great; lands adapted to grass have been laid down; and some better for the plough have been broken up. At Osbornby the rent of 10s. was raised to 17s. 6d.; and several others, in an equal proportion. The produce vastly more considerable. 1. Fallow, 2. wheat, and 3. beans, are now changed to, 1. turnips, 2. barley, 3. clover, 4. wheat. In some of these parishes the old flocks of sheep, which were folded, and sold lean, are greatly increased in number, without folding, and sold fat.

The vast benefit \* of inclosing can, upon inferior soils,

\* Although it may be a received opinion with many, respecting inclosing depopulating the parishes; yet, from carefully searching

be rarely seen in a more advantageous light, than upon Lincoln Heath. I found a large range which formerly was covered with heath, gorse, &c. and yielding, in fact, little or no produce, converted, by inclosure, to profitable arable farms; let, on an average, at 10s. an acre; and a very extensive country, all studded with new farm houses, barns, offices, and every appearance of thriving industry; nor is the extent small, for these heaths extend near seventy miles; and the progress is so great in twenty years, that very little remains to do.

The effect of these inclosures has been very great; for while rents have risen on the Heath from nothing, in most instances, and next to nothing in the rest, to 8s. or 10s. an acre, the farmers are in much better circumstances, a great produce is created, cattle and sheep increased, and the poor employed. The rectory of Navenby, one of the Cliff towns, has become greater than the total rent of the lordship was before.

From Lincoln to Barton was all, or very nearly all, heath, but now inclosed by acts of Parliament. And for five, six, or seven miles every way around Hack-

the registers of many parishes, in the Kesteven division of this county, and comparing the result with a similar one, made by a gentleman in Boothby-Graffoe hundred, published in the *Gent. Mag.* for 1782, p. 74, I find inclosures to have produced a very little variation in the number of births and burials; and it may be necessary to observe, that the places wherein I made my inquiry, have likewise had no manufacture, or other partial circumstance, to influence any increase or decrease of the people.— And that there are other causes capable of increasing the number of inhabitants in a parish besides a manufacture; I will produce *Domington* as a proof. A Mr. Cowley and others gave to that place, for charitable uses, an estate, which, by an inclosure, &c. has so improved, as to become of the yearly value of £. 600; notwithstanding this circumstance the poor-rates are above double what they were before the improvement of the estate; arising from the lower class of persons gaining settlements in the parish by every means in their power, merely through the expectation of benefiting by the said charity.

• *Mr. Cragg, MS. of the B.*

thorne, the same within twelve or sixteen years; and of that tract, the heath part was not more than 1s. 6d. to 2s. an acre; large sheep walks, with pieces tilled alternately, now lets at about 10s. tithe free; and the result otherwise has been, that the tenants live much better, and shew, in every circumstance, signs of greater prosperity. The land is universally kept in tillage.

Around Nortonplace, or rather longitudinally from it to Kirton, &c. open heath did let for 2s. an acre; now for 8s. tithe free; some, however, rising to 15s.; and this general, except near Lincoln, where it is much higher. In Kirton, of which Mr. Harrison has the tithes, lambs and wool paid him, about £. 30 a year, on 5000 acres; from which may be collected how favourable open fields and heaths were to rearing sheep: for in this parish, now under the plough, except the vale lands, proper for grass, the quantity of sheep is considerable; and a great culture of turnips to winter feed them.

The expence, that is the commissioners' rate, for inclosing 5000 acres in Kirton, was about £. 7000, including every public charge; roads came to near £. 1000 of it.

The parish of Gainsborough is just inclosed; the old rent was 8s. an acre; the new 20s.

At Newton the rents were 3s. 6d. twenty years ago; before inclosing; now, some of it, 25s.; much 20s.

In the Isle of Axholm, there is an immense inclosure on the point of beginning; the act and survey having been passed, of no less than 12,000 acres of commons; in the four parishes of Haxey, Hepworth, Belton, and Owston. I passed these commons in various quarters, and rode purposely to view some parts; they are in a wretched

and unprofitable state; but valued, if inclosed, in the ideas of the islanders, at 10s. or 11s. an acre.

				<i>Acres.</i>
In Haxey, claims	-	305	on account of	3810
Hepworth	-	236	-	2285
Belton	-	251	-	3664
Owston	-	229	-	4446

Cottage rights are claims; but lands without a cottage have none. It was a most barbarous omission, that when this act was procured, they resisted a clause to divide the open arable fields, subject to rights of common. But they have here, by a custom, a right of inclosure, which is singular; every man that pleases may inclose his own open field land, notwithstanding the rights of common upon it, while open; and accordingly many do it when, by purchase, they get 5 or 6 acres together, of which I saw many instances; and could not but admire their beautiful quick hedges, which are very fine, and must have been well preserved while young; but there is no clearer proof of good land, than what is afforded by white-thorn hedges.

In the angle of country, east of the Trent, and between that and Ankholm, no new inclosures, of much consequence; one at Wintringham of 500 acres.

Barton Field is one of the greatest inclosures in England; the act passed in 1793. Before the inclosure, the quantities of land were supposed to be nearly as under in statute measure.

# OF LINCOLNSHIRE.

81

## *Barton upon Humber.*

	<i>Acres.</i>
Open arable lands, nearly	4500
Open meadows in the <i>ings</i> , including the <i>growths</i> next the Humber, about	420
Open meadows and pastures in the Little Marshes, about	160
Open common, in- } cow-pasture	250
cluding the growth, } horse-pasture	225
Open Wold land, common, chiefly furze ground, about	270
	<hr/> 5825

According to the survey upon the inclosure, all the open lands and grounds were found to contain 5920 Acres.  
From which about 110 acres were set out in roads and drains.

The ancient inclosure within and about the town, including the sites of the homesteads, &c. in the town,—contain, by survey 150  
The Grange and Warren Farm on the Wold, ancient inclosure, about 170

Therefore the whole parish contains, as nearly as may be, by survey 6240

Of which, after deducting the roads, and the site of the town, there may be 6000 acres of land, used in pasture and tillage.

The assessments of the commissioners, under the inclosure act, amounted to about £. 13180, to defray the expences of the act, fencing of tithe allotments, public and private roads, banks, jetties, cloughs, bridges, &c. &c.



The completing the public and private roads cost about £5000. The Humber banks and jetties about £. 2000, or rather more.

The parish pays yearly to the land tax £. 210. 8s. 4d.

The value of these lands before the inclosure were open arable let at from 4s. to 9s. per acre, of something less than 3 roods; little parcels for 10 or 12s.; average about 6s. 6d. Part of the Marshes was let with the arable; thus the plough land of 72 acres arable, and 8 of meadow in the ings, being 4 ox-gangs, were let together: all at the same rent. The common was stocked by the occupiers of common-right houses and lands; and also a part of the Marshes. The inclosure began directly, and they entered on the allotments in 1794. The amount of the commissioners' assessment was £. 13000 for the act, tithe fencing, roads, Humber banks, jetties to secure the shore, sluice for drainage, bridges, &c. The roads alone cost £. 5000. Drains £. 700. Now the arable fields let, on an average, at 20s. About the town, much more; at a distance, less. The Marsh land would now sell at £. 70 an acre, near the town; at a distance, £. 40. Some ploughed land, one mile from town, £. 40 to 50 an acre. Old inclosures, near the town, £. 100 an acre, for convenience. The Common on the Wold, 12s. an acre. The parish, including every thing, may now be rented at, or worth £. 6000 a year; it was £. 2000, and all the tenants better satisfied than before; 150 acres were given to the vicar for his small tithes; and 900 were assigned for great tithe, most conveniently for the impropriator. Many new farms, barns, &c. built, and more building.

The wheat, before inclosing, two quarters on the customary measure of three-fifths statute;—the beans not more than two quarters: these crops are now changed to 1. turnips, worth 30s.; 2. barley, 4½ quarters; 3.

clover, mown once, two loads per acre, worth 50s. ; and a very fine-after grass of 10s. an acre ; 4. wheat, four quarters. There is wheat now in the field that will be five. They formerly carted their corn and manure  $2\frac{1}{2}$  miles.

Horton was inclosed twenty years ago, and advanced from 10s. to 20s. Winterton also from 10s. to 20s. Coalby was inclosed forty years ago ; 800 acres, let now at £. 700 a year, about 17s. 6d. an acre. Killingholm, inclosed about twenty years ago, was open clay arable, let at 4s. or 5s. an acre, now 12s. or 13s. Inclosing does not answer to any great degree upon clay, as they cannot have seeds or turnips ; and if laid down to grass, it is twenty years before it comes to good pasture.

By the acts for inclosing Barton, Barrow, and Goxhill, no less than 17000 acres are rendered productive, to the infinite advantage of the community.

I was told, before I got into the Clays, as they are called, or Middle Marsh, that inclosing did not answer that, however it had succeeded on the Wolds. When I got to Humberston, I discovered the explanation : they summer fallow for wheat, and then take beans, after inclosing, exactly as before. How then can it answer ? and old tracts of pasture are ploughed up in consequence, and not converted to a good system of tillage, but covered with bean crops that never see a hoe. In passing from thence to Tetney, Fulstow, Covenham, &c. I passed through a large open field in the fallow year, which had not, in September, received its first earth ; but was covered with thistles, passed their blossom, high enough to hide a jackass ; yet the dung was spread amongst them as if the wheat would be sowed : and the soil, thus horribly neglected, a fine rich tenacious loam, not clay, as greasy and soapy almost as a pure clay ; but there is much sand in it :—a soil well worth 30s. an acre, or

upwards, in rent, tithe, and rates. Who will be hardy enough to hazard such a folly, as that any part of the lime of Clays, I have seen or heard described, will not answer inclosing? Yet, such nonsense I have heard; no wonder, in a country where landlords, stewards, farmers, are all five centuries behind in every idea relative to strong land. They are awake and moving on turnip land; but on bean soils, are still fast asleep.

From Louth to Saltfleet, and from Sutton to Alford, open fields, with unploughed fallows, the 15th, &c. of September; covered with thistles in beautiful luxuriance, and plenty of other rubbish. But they have imbibed the same notion, I suppose, that strong land will not pay for inclosing.

The following inclosures have taken place about Spilsby, &c.; among many others, Dalby twenty-eight years ago; Driby twenty; Langton forty; Tetford twenty-five; Swayby ten; Belleau ten; Hag three; Greetham three; Ashby Puerorum five; High Toynton fifteen; also Ashby, East and West Keal, and Fulletsby; in all which, upon an average, rents have trebled by inclosure; forty years ago very little was inclosed in all the country.

Upon the principles on which the commissioners of inclosures should conduct themselves, Mr. Elmhurst observes: "Where the town happens to be situated in, or pretty near the centre of the lordship, the properties (upon the inclosure) may, with great propriety, be laid contiguous, or nearly so, to the farm houses; and as much in squares as the nature and shape, &c. of the fields will admit; but when otherwise, then the distant lands ought to be so laid out and allotted, as best to suit for occupation, as a farm or farms, on which houses, &c. may be built; having, as much as may be, an eye to water, and different sorts of land; but to have due consideration to the *whole* of the

proprietors, (small as well as great) so as not to injure any one, by making it *particularly* convenient to another or others. I acted as a commissioner a great many years; and was, at *one time*, concerned in *nine* different inclosures; and, from my first being in that business, (which is near twenty-eight years) I ever have attended first to what concerned the public, respecting the laying out, forming and making the roads, (at the expence of the proprietors) in the properest and most eligible situations, for the greatest conveniency of all who may travel, or do business upon them; for, I thought and said, that the legislature could never *intend* to place such power in any set of men, as commissioners, or delegate them with such extraordinary power (as they *then* seemed to *fancy* they had) by which they should or might injure the public.—And that *mode* I ever and always pursued, so long as I continued to act. Another observation I, at the first, made, and ever after put in practice, was this, *always* to begin to line out and allot for the *smallest* proprietor *first*, (whether rich or poor) in *every* parish, so as to make such allotment as proper and convenient for the occupation of such, or their tenant, (as that might be) to occupy; and so on, from the smallest to the greatest: for it is for the advantage of the greatest and most opulent proprietors, that a bill is presented and act passed; and at *their* requests,—and not the small ones; and, as the little ones would have no weight by opposition, *they must submit*, was it ever so disadvantageous to them; as it *very often* happens; and, therefore, there can be no *partiality* in defending *those*, who cannot help or defend themselves; and a *little* man may as well have *nothing* allotted to him, as to have it so *far off*, or so inconvenient for him, that it is not worth his having, as it would prevent his going to his daily labour; and, therefore, he *must* **SELL** *his*

property to his rich and opulent adjoining neighbour ; and *that*, in some measure, decreases population."

For the following most important table, I am obliged to Mr. Parkinson of Asgarby, steward to Sir Joseph Banks, &c. It is, in every respect, a very curious paper, and shews the vast works, which have been carried on successfully in this great county.

OF LINCOLNSHIRE.

87

There are other parishes, that I have been commissioner for, which I have not an account of, owing to my books being from home.

Add to the improved annual value of £72,150. 15s. 11d. upon a moderate estimation, the annual produce of three times the rent; making for the Fens, drained by the Witham, £. 127,130.—For the highland old inclosures £. 89,321. 14s. 6d. together; for the whole, £. 216,451. 14s. 6d. being the annual produce by cultivation."

Upon this animating detail, I have only to remark, that the valuation of the improved rents was that of the commissioners; but the real rents, at this time, exceed it in many instances; thus Holland Fen is here reckoned at about £1. 1s. per acre, whereas the average is now, as appears by the minutes, about 27s.: but even if we suppose that no further rise has taken place, than here stated, it is a noble spectacle to see such a prodigious improvement effected. The old rent is 4s. 8d. per acre. The new rent is 15s. 8d.

Mr. Loft, of Marsh Chapel, is of opinion, that in the clay arable of the Middle Marsh, to allot and divide, would be better than to inclose.

Mr. Ellison at Sudbrook remarked to me, that he is clear, if a register of offences at the sessions was kept, it would be found that a very large proportion originated with the inhabitants who lived on commons, and in uninclosed parishes.

Claypool, Beckington, and Doddington have been inclosed since 1771, were 8s. an acre, when open; now 18s. 20s. and some more.

The country, west of the great north road, to Woolsthorpe, Belvoir Castle, &c. all inclosed: a lordship, which, thirty-two years ago, was £. 300 a year, is now £. 1500 a year. All these have been greatly improved in

management, entirely by inclosing ; and especially in turnips and seeds, and the breeding of sheep, articles which have taken place only in inclosures.

The open fields about Grimsthorpe, by bad management and constant ploughing, produce very little ; Mr. Parker is clear that one-third of the land inclosed would yield more corn and profit. But much has been done in twenty-five years, Corby, Swinstead, Swayfield, Bourn, Norton, Hackenby, South and North Witham, Skillington, and many others have been done ; and the rents have been doubled in consequence.

The Duke of Ancaster very justly remarks, that rents are usually raised much too soon upon inclosures taking place ; the tenant is put to much inconvenience, and incurs, sometimes, a very large expence ; to raise immediately is unjust ; there ought to elapse three years before any increase takes place. His Grace, upon inclosing, has given his tenantry that indulgence ; and, at Newby, upon asking one of them what would be a fair rise, on his farm of £ 29. a year ; the farmer offered £ 60. ; which the Duke thought so honest that he rewarded him with a lease of twenty-one years.

*Recapitulation.*

		<i>Old Rent.</i>			<i>New Rent.</i>		
		£.	s.	d.	£.	s.	d.
Long Sutton	-	0	5	0	2	0	0
Lincoln Heath	-	0	1	0	0	10	0
Do. Lincoln, to beyond Kir-							
ton	- -	0	1	9	0	10	0
Near Norton	- -	0	2	0	0	10	0
Gainsborough	-	0	8	0	1	0	0
Carried forward		0 17 9			4 10 0		





In the new inclosure on the Heath above Belton, I remarked that the quicks were kept clean, and were very thriving. Expence of a treble rail, on each side, bank and quick, 1s. 8d. a yard, running measure.

The expence in the new inclosures on the Heath from Norton to Kirton, is 11s. a rood of 7 yards, and 2d. per rood per annum for keeping clean, and replanting failures for three years.

Mr. Hesselden gives, in the new inclosures of Bartonfield, 1½d. a rood for three weedings; I observed many of the quicks much neglected.

Mr. Lloyd of Belesby is very neat in his fences, keeping them clipped regularly.

Mr. Parkinson, in his business as a commissioner in many inclosures, has necessarily had a great opportunity of seeing the result of various modes of planting and securing quick; and when he inclosed his own estate at Asgarby, he pursued a Leicester method, with one fence of a very small trench, planting the quick upon the surface of the field for the sake of moisture; the other side of the same field he made a double ditch, three feet deep; and the difference in the growth was very great, the former was as good at three years, as the other at seven.

## CHAPTER VII.

## ARABLE LAND.

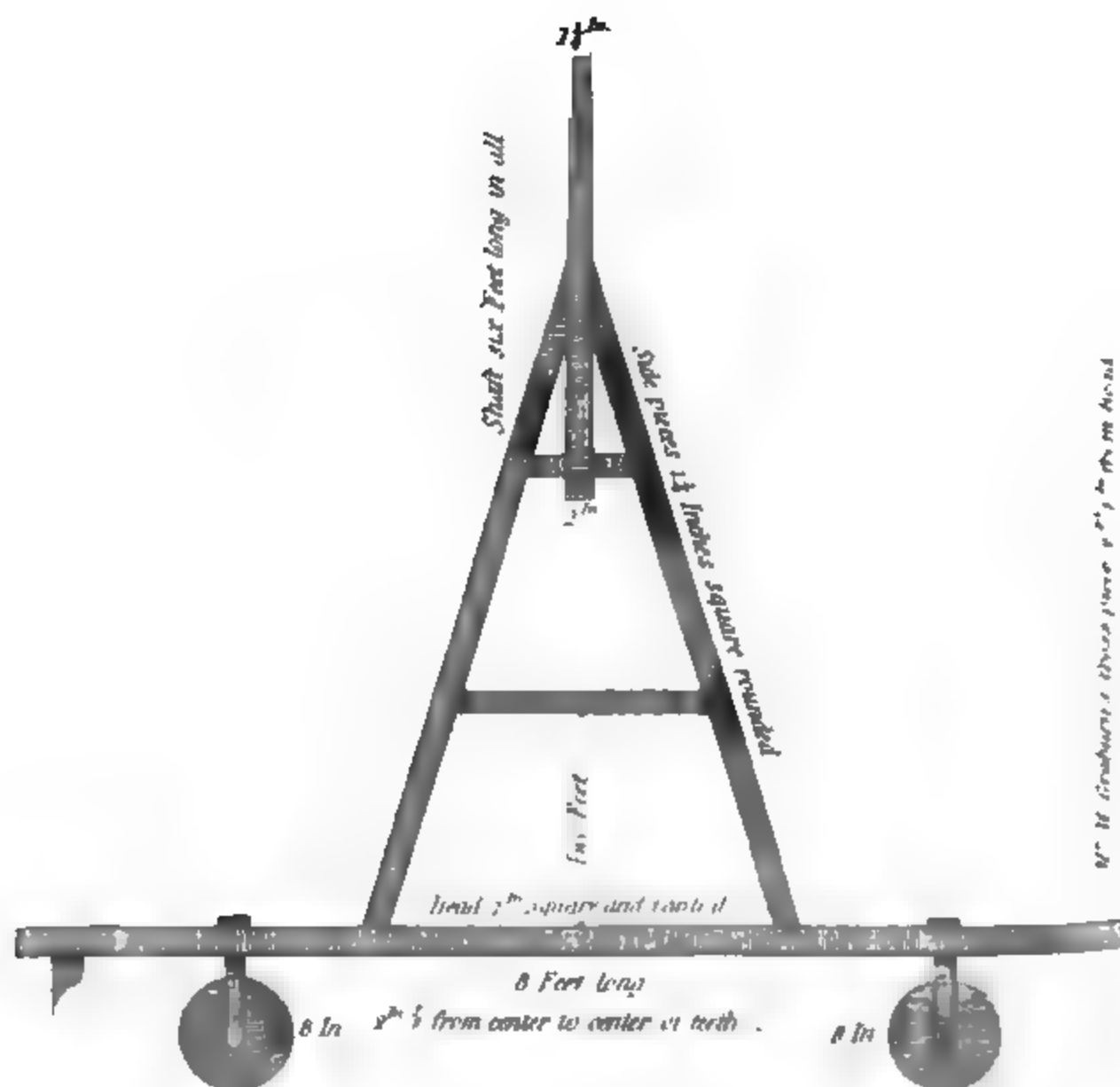
THE management of arable land in Lincolnshire has never been celebrated ; when I was in the county upon a farming tour, near thirty years ago, I saw little but what merited condemnation ; and I entered it now expecting to find it in a very backward state. There is certainly much to disapprove in the management of wet clay, but I was very agreeably disappointed in that expectation on most other soils ; and I need not observe, that the districts of the kingdom, in which wet arable is well conducted, are extremely few.

SECT. I.—*Tillage.*

IN the vicinity of Market Deeping, the arable common fields are ploughed up into broad arched lands, as in the midland counties ; but the furrows for three, four, or five yards wide, laid down to grass and mown for hay, while the crowns of the ridges are under corn : this management is excellent, and much superior to having such miserable corn in these furrows, from wetness, as is seen from Chattris towards Whittlesea to Peterborough ; the centres of the lands being high, are dry and fit for corn, and the furrows low, and do well for grass.

Mr. Cartwright finds that the best mode of preventing thistles is deep ploughing. The common depth does not exceed three or four inches ; but where the soil will admit six, it has a good effect in lessening the number of that pestilent weed. Mr. Cartwright also remarks, that





Wheels 1 in thick in the middle & 1/2 inch on the edge





when a thin loam, &c. is found on a clay bottom, the soil may in some cases be clayed advantageously by ploughing deeper ; but that then it would be prudent to try the quality of such clay by experiment in some bottomless boxes, by sowing grain in it ; and if so ploughed, to begin before winter.

Mr. Trimnell of Bicker had a servant who, in a critical season when exertion was necessary, ploughed, with two pair of horses, 45 acres, the seed furrow, in nine days ! and in a masterly manner ; one man and 4 horses did therefore five acres a day, which is an extraordinary exertion indeed.

On the heath land at Leadenham they plough their seeds, after resting two years ; but once for barley. Mr. Bestal ploughed his, in 1797, three times, but the season proved so wet, that he lost his crop by weeds.

In the new inclosures north of Lincoln, they plough three to four times ; for wheat three or four, for barley once, after turnips, fed. Every where with two horses, and no driver.

On the tract of high sand that hangs to the Trent from Gainsborough to Newark, particularly of Knaith, they plough but once after turnips, fed off, for barley ; and it is the same often upon Lincoln heath land.

About Normanby, Burton, &c. they plough for barley but once, thinking that by so doing they preserve the manure left by eating off the turnips with sheep ; this is general. But at Alkborough Mr. Sutton ploughs on land that is rather strong, twice ; on sand only once.

Mr. Graburn of Barton has, for four years past, tried with success dragging in corn, barley, and oats. After ploughing turnip-fed land once, instead of a second earth, scuffle the seed in with Cook's scufflers ; put in 90 acres so, and the crop as good as any. One man and three horses did eight acres a day, a mile from home, which



strength would have done but one acre in ploughing and harrowing; but he thinks the drags much better; has dragged in 150 acres with his four-rowed duck-footed drag; sown with seeds, and the land as clean under them as his neighbour's, who put in with ploughing. This year he has tried it with turnips, on 16 acres ploughed twice, and worked with drags, one in winter and one in spring; three of the lands were managed with the plough, and had an earth extra; the turnips dragged are better than where ploughed, and he is determined in future to follow this method. On light Wold land the crop misses much in the common way, gets too dry.

At Wintringham they plough four, five, or six times for turnips; twice for barley, but some only once. In fallowing for wheat, they stir five times; and the wheat stubble once for beans.

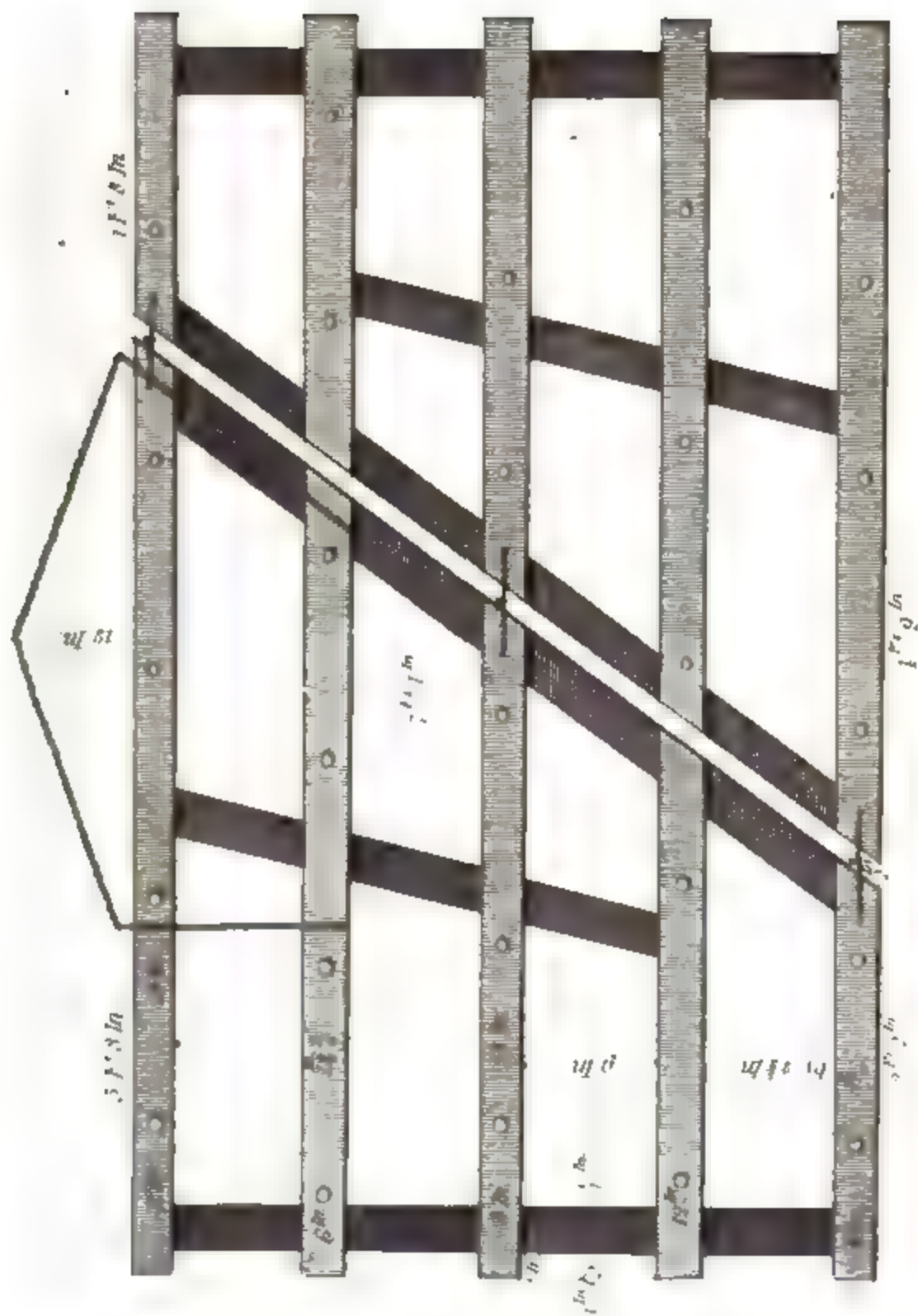
At Alesby Mr. Skipwith has been ploughing down the old highlands of the country for twenty years past. They were of a bad form, too high for the breadth, which was 4, 5, to 10 yards, crooked, and wider at one end than the other; he ploughs into flat lands 3 or 4 yards broad; finds it a great improvement, because he thinks much less manure will do, as it washed off the sharp sides of the old ones. But he narrows his lands on the wettest and strongest soils.

About Dalby they plough their turnip land but once for barley. Mr. Wright of Spilsby once, and yet gets fine crops. For turnips, three or four.

About Reevesby they plough never less than four times for turnips; then twice for barley, but many only once; all twice, where eaten by January.

At Sudbrook they plough four times turnip land: for barley once: Mr. Ellison's bailliff has ploughed twice, and been the worse for it, if eaten by Candlemas, but if finished early, then he stirs twice. Mr. Ellison has

# MR. CHAMBERLAIN'S HARRROW.





ploughed down all the old high lands as much as possible ; but does not approve keeping clay land flat ; sand cannot be too level ; even this soil here was formerly ploughed up in very high lands, equally with clay.

### SECT. 2.—*Fallowing.*

It would be easy to expatiate under this head, on the propriety of banishing fallows ; but as all such observations are equally applicable to every part of the kingdom, and I met with no experiments made expressly on this subject—let me pass on to

### SECT. 3.—*Course of Crops.*

On breaking up the rich common of Long Sutton,

- |                          |           |
|--------------------------|-----------|
| 1. Oats.                 | 5. Wheat. |
| 2. Oats.                 | 6. Oats.  |
| 3. Wheat.                | 7. Cole.  |
| 4. Cole, fed with sheep. |           |

On the black peat land in Deeping Fen, Mr. Graves,

- |                      |                   |
|----------------------|-------------------|
| 1. Pare and burn for | 3. Cole for seed. |
| cole seed fed.       | 4. Oats.          |
| 2. Oats.             | 5. Grasses.       |

Some farmers in this fen have sown both wheat and barley on fallow, and got large crops.

In Holland Fen, 1. fallow\* and cole, fed, eight sheep an acre.

\* Fallowing is not uncommon in the Fens ; it is called *bobbing*, and performed as follows : plough the land over in the winter, in the spring cross-plough ; harrow and plough again in May or June ; then with a long-tined wooden harrow, and an instrument called a *bob*, collect the roots of weeds and vegetables together, those shake up and burn ; repeat this till the land is perfectly clean ; the ashes being spread at each burning, if more than one, and then sown with coleseed.

- |                             |                        |
|-----------------------------|------------------------|
| 2. Oats.                    | 3. Clover—others.      |
| 3. Oats ; but best farmers, | 3. Drilled beans.      |
|                             | 4. Wheat, or 3. wheat. |

It is, however, necessary to observe, that in the Fens, there is no system generally pursued, except that of *beginning* with paring and burning, in which, most unquestionably, they act wisely ; whatever may be thought of repetitions of that practice afterwards : burning a second time is not frequent ; but fallowing for cole, to be eaten off with sheep, every third, fourth, or fifth year is common management. Oats and cole are the only produce till the first luxuriance of the soil is somewhat abated ; when the land begins to acquire more consistence, from mixing by tillage, wheat is sown, and forms a very considerable article.

Upon the rich arable at Brothertoft, Mr. Cartwright practices this course, after trying several others.

- |  |   |
|--|---|
| 1. Fallow, for cole, fed with sheep, and worth 50s. an acre. | 4. Wheat.                                       |
| 2. Oats.   | 5. Clover, mown once, 2 tons hay, and then fed. |
| 3. Beans.  |   |

To fallow the clover ley is uncommon ; but it is sown with wheat, always a good season, but succeeding three crops, it may, if the year is unfavourable for cleaning beans, not be in such high order as to make a crop of corn advisable : cole on it, following a two years fallow in succession, must keep the land in great heart. This 26s. or 27s. an acre. The clover is sown at the end of March, or beginning of April.

Mr. Stephenson at Swineshead, on the fertile soil of Holland Fen,

- |                    |  |
|--------------------|--|
| 1. Oats, on layer. | 4. Oats.                                     |
| 2. Wheat.          | 5. White clover and parsley for three years. |
| 3. Cole.           |  |

Mr. Thorold, in Donnington Fen, 1. Cole. 2. Oats. This for several years, and the oats regularly the best. No manure.

In Holland Fen, and particularly at Swineshead, if wheat is sown on a barley stubble, they get little. Mr. Stephenson has tried this ; his predecessor had left a stubble field, of which the greater part had been oats, and a small piece barley. The whole field Mr. Stephenson sowed with wheat, and in the crop at harvest he observed a very great deficiency in the whole of that part which had followed the barley ; insomuch that the very shape of the piece, which was remarkable, could be traced with the utmost exactness, by the failure of the wheat there, and *no where else*. Not knowing how this spot of land had been previously managed, he would not admit this as a proof, that barley was a worse crop than oats to precede wheat ; although he had heard that upon fen land it was so. He therefore afterwards made the experiment, by sowing a small piece in a field with barley, of which the rest was oats ; all the land being equally good, and prepared alike. The effect as before, in every respect ; the barley piece producing only two quarters of wheat per acre, while the oat part yielded four and a half. Nor was the mere deficiency all the difference ; for while the wheat after *oats* was *fine and healthy*, that which followed the *barley* was *diseased and blighted*, and required the sickle ten days sooner than the good corn. In 1793 the field adjoining his barn was sown with oats ; while a small portion he sowed with barley, to mow for his cart horses. It was thrice mown, and produced a great burthen of green food. But this application of the barley made no difference in its effect on the crop of wheat which succeeded. After the *oats* it was extremely good ; after the barley, the reverse. I am also informed, that in 1792 Mr. Moss of Swineshead experienced the like ; and that his wheat

after *barley* was *mildewed*, while his wheat after *oats*, in the same field, and with the same management, was very good.

After such facts, may it not even be doubted, whether the intervention of a crop of clover, will be sufficient to save the wheat from the ill effects of having preceded it with barley? The great deficiency in my wheats of the present year, 1794, where I had barley in 1792, and clover in 1793, favour, I own, a suspicion of this kind.—

*Remark of Mr. Cartwright.*

Mr. Hoyte, upon strong clay,

1. Dibbled beans on old sward.
2. Wheat dibbled.
3. Manured for drilled beans.
4. Wheat, now on land sown with red clover.

Intends to dress with soot for dibbled wheat. On middling soils,

1. Turnips hoed.
2. Barley.
3. Clover 1 year, mown once.
4. Dibbled wheat.
5. Pease drilled and hoed.
6. Turnips.
7. Barley.
8. White clover 12lb.; red, 4lb.; two years fed with sheep.
9. Dibbled wheat.

Upon still lighter soils,

1. Pease on seeds.
2. Turnips.
3. Barley or oats.
4. White clover; sheep grazed one year.
5. Barley on three ploughings.
6. Turnips.
7. Red clover, mown once, and then pease again.

Some tares, cole, and turnips in same year, after tares.

Mr. Tyndal of Ewerby keeps in the old course of,

1. Fallow and dung.
2. Wheat.
3. Oats.

But upon dry land,

1. Turnips.      3. Clover.
2. Oats.          4. Wheat.

The vast object of a good course of crops is seen strongly in this county in a variety of instances. Mr. Dawson, Berthorp, broke up a field of old grass; on one half of which he sowed oats, and on the other half beans; he got a good crop of both; the next year the bean half he sowed with wheat, and got a crop, which I saw, of probably 4 quarters an acre; the oat part he sowed with barley, and it was much damaged with weeds. The difference of profit will not amount to less than £ 10. an acre. But this is nothing to a neighbour of his, who has now sixteen acres of what is called barley after oats, but in reality one entire and most luxuriant crop of sow thistles. Such a sight I never beheld. Had he fed them with sheep, being an excellent plant for them, it would have kept more stock perhaps than any field on his farm. Or he might, at the proper time, have mown the whole for hay, and got ready for turnips; any thing rather than what he has done: as to barley, there is not enough to pay for harvesting. Mr. Dawson in the Fen had a field, in which seeds failed, but sow thistles came a full crop; he turned in sheep, which eat them all off, and did exceedingly well on them, and the land afterwards very clean.

Lord Brownlow's rotation upon rich sand,

1. Oats from the ley.      3. Oats and grass, ray grass,
2. Turnips.                      and white clover.

Upon land kept in tillage,

1. Turnips.                      3. Clover.
2. Barley.                        4. Wheat.



On Lincoln Heath, above Belton,

1. Turnips.
2. Barley.
3. Oats.
4. Grasses for various terms.
5. Oats.

In the new inclosures that were before field land well managed,

1. Turnips.
2. Barley.
3. Seeds ; clover if to plough up for wheat, if not, white clover, ray, and trefoil for 2, 3, or 4 years ; and then,
4. Oats.

At Leadenham, on the Cliff lands,

1. Turnips.
2. Barley.
3. Seeds two years.
4. Barley on one ploughing  $3\frac{1}{2}$  quarters.

But so near as Navenby the soil is better ; there they are in what is called Four fields, retaining the terms of the former open fields,

1. Turnips, fed with sheep.
2. Barley.
3. Clover.
4. Wheat.

At Blackenham the common course is,

1. Turnips.
2. Barley.
3. Barley.
- 4, 5, 6. Seeds for 2 years.
7. Oats.

Instead of this Mr. Chaplin prefers,

- |             |                       |
|-------------|-----------------------|
| 1. Turnips. | 3. Seeds for 2 years. |
| 2. Barley.  | 4. Pease.             |

In one field he practiced for eight or nine years the following singular course,

1. Turnips.
2. Barley.

The crops of turnips have never failed, and the barley has been constantly productive, yielding at least 5 quarters, often more; and once 8. Rent of this land 10s. subject to tithe; these redish sandy lands are, however, admirable for barley, and worth more than that rent.

On the Wolds,

- |             |                       |
|-------------|-----------------------|
| 1. Turnips. | 4. Barley.            |
| 2. Barley.  | 5. Seeds for 3 years. |
| 3. Turnips. | 6. Wheat or oats.     |

Mr. Cracraft,

1. Turnips.
2. Barley.
3. Seeds, and white red clover, hayseeds, and trefoil for 3 years.
4. Oats.

Or,

- |             |            |
|-------------|------------|
| 1. Turnips. | 3. Clover. |
| 2. Barley.  | 4. Wheat.  |

The common farmers on heath land inclosed,

1. Turnips.
2. Barley.
3. Seeds for three years.
4. Oats or summer fallow for wheat.

On the better land,

1. Turnips.
2. Barley.
3. Clover, mown once or twice.
4. Wheat.

About Norton Place, on the best land,

- |             |            |
|-------------|------------|
| 1. Turnips. | 3. Clover. |
| 2. Barley.  | 4. Wheat.  |

But on inferior soils varies thus,

1. Turnips.
2. Barley.
3. Seeds, white clover, and trefoil for 2 years.
4. Pease.
5. Wheat;

but still with other variations, according to circumstances. Others, in order to be able to secure the right quantity of turnips, when the land will not give them without manure, and that wanted, will, to secure the crop, take

- |                        |            |
|------------------------|------------|
| 1. Turnips.            | 5. Barley. |
| 2. Barley.             | 6. Seeds.  |
| 3. Seeds 2 or 3 years. | 7. Pease.  |
| 4. Turnips.            | 8. Wheat.  |

The following is not a common course, but has been practiced :

1. Rape.
2. Seeds.

Mr. Dalton at Knaith,

1. Turnips.
2. Barley.
3. Clover mown, or trefoil fed,
4. Wheat.

On the rich sands at Martin, the same.

At Haxey,

- |              |                        |
|--------------|------------------------|
| 1. Potatoes. | 5. Wheat; if plenty of |
| 2. Wheat.    | manure, potatoes       |
| 3. Barley.   | again; if not,         |
| 4. Clover.   | 6. Barley.             |

Another,

- |                      |            |
|----------------------|------------|
| 1. Hemp or potatoes. | 5. Barley. |
| 2. Barley.           | 6. Clover. |
| 3. Beans.            | 7. Wheat.  |
| 4. Wheat.            |            |

On clay land,

1. Fallow ; and if manured,
2. Barley.
3. Beans.
4. Wheat.

If not manured,

1. Fallow.
2. Wheat.
3. Clover.
4. Wheat.

Mr. William Darrand, on good land, 30s. an acre,

- |              |             |
|--------------|-------------|
| 1. Potatoes. | 9. Barley.  |
| 2. Wheat.    | 10. Clover. |
| 3. Barley.   | 11. Wheat.  |
| 4. Clover.   | 12. Flax.   |
| 5. Wheat.    | 13. Barley. |
| 6. Flax.     | 14. Clover. |
| 7. Wheat.    | 15. Wheat.  |
| 8. Flax.     |             |

But though fallows in the open fields at Haxey are, in general, banished, they are not totally ; for I observed some ploughing, which the farmer told me would sell at £ 40. an acre.

At Butterwick, in the Isle, they have various courses, which deserve noting.

1. Potatoes.
2. Wheat.
3. Beans.
4. Wheat.

Also,

1. Potatoes or hemp.
2. Flax.
3. Wheat, no clover.
4. Beans.
5. Wheat.

At Garthorpe, in the Marsh, new land broken up,

- |              |              |
|--------------|--------------|
| 1. Flax.     | 5. Rape.     |
| 2. Rape.     | 6. Potatoes. |
| 3. Potatoes. | 7. Flax.     |
| 4. Flax.     | 8. Wheat.    |

It will certainly bear this for ten years.

About Normanby, Burton, &c. on the arable sand of the lightest sorts,

1. Turnips.
2. Barley.
3. Turnips.
4. Barley with grass seeds; with sometimes rye instead of the barley.

Recommended by Mr. Wilson,

1. Turnips.
2. Barley; but, if very light, spring rye;

On the best dry land, one course of

1. Turnips.
2. Barley.
3. Clover.
4. Wheat.
5. Turnips.
6. Barley.
7. White clover, rib, and trefoil; (ray precluded) to be eaten three or four years with sheep; then plough for turnips again. Farmers here wish to break up for corn; and, if a tough sward, permitted.

Upon stronger lands,

- |                 |            |
|-----------------|------------|
| 1. Oats on ley. | 4. Beans.  |
| 2. Fallow.      | 5. Fallow. |
| 3. Wheat.       |            |

Open field, strong land,

- |            |           |          |
|------------|-----------|----------|
| 1. Fallow. | 2. Wheat. | 3. Oats. |
|------------|-----------|----------|

Mr. Goulton's own rotation,

Seeds broken up for

1. Oats, sometimes beans.
2. Turnips.
3. Barley.
4. Grasses : white clover, trefoil, and rib, and sometimes hay seeds for four years.

In the new inclosure of Barton—before the inclosure it was 1. fallow, 2. wheat, 3. beans or barley ;—but beans seldom a good crop ; now the course is,

- |                   |                            |
|-------------------|----------------------------|
| 1. Turnips.       | 3. Seeds for 3 or 4 years. |
| 2. Barley.        | 4. Wheat.                  |
| 3. Red clover, or |                            |

On the low land, on Humber.

In Barrow field,

- |                |            |
|----------------|------------|
| 1. Fallow, 5½. | 3. Beans.  |
| 2. Wheat.      | 4. Barley. |

At Wintringham there are three rotations. On the strong loams, the course prescribed is,

1. Summer fallow.
2. Wheat.
3. Beans.

But on the drier loams it is,

- |             |            |
|-------------|------------|
| 1. Turnips. | 3. Clover. |
| 2. Barley.  | 4. Wheat.  |

Upon the newly broken up rich Marshes, they are allowed to take three crops of white corn ; then potatoes ; and after that, two crops of white corn to one of potatoes ; rape, hemp, flax, excluded.

On the Marshes, newly inclosed at Barton,

1. Pare and burn for rape fed ; and the year after ; seed four quarters an acre.
2. Oats, 10 quarters.
3. Oats, 10 quarters.

On old pasture,

- |           |           |
|-----------|-----------|
| 1. Oats.  | 1. Oats.  |
| 2. Beans. | 2. Oats.  |
| 3. Beans. | 3. Wheat. |

On the Wolds at Great Lumber, Mr. Richardson's course is,

1. Pare and burn old layer for turnips.
2. Barley or-oats.
3. 4. 5. Seeds ; 14lb. white clover ; 4lb. red ;  
4lb. trefoil ; left for three years,
6. Turnips, &c.

But the more common one,

1. Pare and burn for turnips.
2. Oats or barley.
3. Oats or barley.
4. 5. 6. 7. Seeds ; 14lb. white clover, and one  
bushel ray.
8. Pease or oats.

- Also,
1. Break up sward for pease or oats.
  2. Turnips.
  3. Barley.
  4. 5. 6. 7. Seeds.

At Belesby,

1. Turnips.
2. Barley.
3. Beans. And then Mr. Lloyd adds, if the  
beans were drilled,
4. Wheat ; which is an excellent course on good  
land.

Other courses here,

- |            |                     |
|------------|---------------------|
| 1. Fallow. | 1. Fallow and dung. |
| 2. Wheat.  | 2. Barley.          |
| 3. Beans.  | 3. Beans.           |

Mr. Lloyd is allowed to take two crops of white corn in succession ; but never does it.

At Alesby Mr. Skipwith,

- |             |                              |
|-------------|------------------------------|
| 1. Turnips. | 4. Beans.                    |
| 2. Barley.  | 5. Wheat, if clean ; if not, |
| 3. Clover.  | turnips again.               |

At Humberston,

- |                     |                            |
|---------------------|----------------------------|
| 1. Fallow.          | 3. Beans ; and this is the |
| 2. Wheat or barley. | general practice.          |

However, I saw clover ; and therefore hope they will get into a better course. I recommended (if they will have fallow) 1. fallow, 2. wheat, 3. clover, 4. beans, dunged for 5. wheat, which Mr. Tomlinson much approved of.—Not however without admitting, and Mr. Bee the same, that the two crops and a fallow was good, and not to be complained of.

For some miles on the Wolds, about Louth, they are very good farmers, indeed, in respect to courses ; the following singular one is common ;

1. Turnips.
2. Barley.

They assured me that this land, though of 15s. an acre, would not do to add clover and wheat ; and, upon their poorest soils, another that has merit, if their assertions are correct,

- |            |                           |
|------------|---------------------------|
| 1. Fallow. | 5. 6. Seeds ; 14lb. white |
| 2. Oats.   | clover, 4lb. trefoil, and |
| 3. Fallow. | a sack or more hay        |
| 4. Oats.   | seeds.                    |

Upon my objecting to so much fallow on light land, Mr. Cluff, of Gayton, assured me, that upon these distant parts of their farms, they could not get turnips without so much dung as would not answer to carry, nearly so well as to lay it on their better lands ; that in this way, they could get six, seven, or eight quarters of oats,



which answered much better than any other way of managing.

Mr. Hyde, at Tathwell, practices on a soil of good loam or clay, or rather a flint cledge, and under that, chalk, this singular course,

1. Turnips.
2. Barley or oats ; the former 4 quarters.
3. Clover, first mown, and then eaten.

The turnips manured every second course. The crop of clover extraordinarily great, even three or four loads an acre. The barley, as above noted, inferior to what a course so very favourable to the land ought to produce. Clover recurring so often, the land, I should fear, will soon sicken of it.

- |            |            |
|------------|------------|
| 1. Fallow. | 3. Clover. |
| 2. Wheat.  | 4. Beans.  |

This is a wretched arrangement, for want of adding wheat after the beans ; only to be effected with propriety, by a much superior culture of beans to any thing known in Lincolnshire.

About Saltfleet, when marsh grass is broken up,

- |          |           |
|----------|-----------|
| 1. Oats. | 4. Beans. |
| 2. Cole. | 5. Oats.  |
| 3. Oats. | 6. Wheat. |

Some of it inexhaustible by ploughing ; and, after a long course of crops, very great products. No hemp or flax.

Mr. Bourne, of Dalby, is a great practicer of that singular course abovementioned, 1. turnips, 2. barley ; and, when he finds the land in good heart and order, throws in a crop of oats after the barley ; but this will not be more often than once in six years. And, sometimes, on his better lands, 1. turnips, 2. barley, 3. clover, 4. wheat ; but this will only answer about once in ten years.

About Spilsby, 1. turnips, 2. barley or oats, 3. oats,

4. turnips, 5. sp. corn, 6. clover, for wheat, or 6. white clover 14lb. and two or three pecks ray, for two or three years, and then oats. Turnips and barley alternately common:

In the hundred of Skirbeck, in open field,

- |            |                     |
|------------|---------------------|
| 1. Fallow. | 3. Beans and pease. |
| 2. Wheat.  | 4. Wheat or barley. |

But Mr. Linton, in the inclosures, if new broken up,

- |                     |                     |
|---------------------|---------------------|
| 1. Oats.            | 5. Oats.            |
| 2. Oats.            | 6. Wheat.           |
| 3. Oats.            | 7. Cole or turnips. |
| 4. Cole or turnips. |                     |

If old arable,

1. Cole or turnips.
2. Oats or beans, or barley.
3. Wheat after oats and beans ; clover after barley.
4. After clover, wheat.

And many repeat the three first ; but Mr. Linton,

1. Cabbages or turnips.
2. Barley.
3. Clover.
4. Wheat.
5. Beans, manured and drilled.
6. Wheat, which is better than that after clover.

Also, 1. Beans, drilled.  
2. Wheat.

Mr. Cracraft, at West Keal, on his new marled sand,

- |             |            |
|-------------|------------|
| 1. Turnips. | 4. Clover. |
| 2. Barley.  | 5. Oats.   |
| 3. Wheat.   |            |

At Reevesby and Asgarby, &c.

- |             |            |
|-------------|------------|
| 1. Turnips. | 3. Clover. |
| 2. Barley.  | 4. Wheat.  |

Upon poor land or wolds,

- |                   |                          |
|-------------------|--------------------------|
| 1. Oats on seeds. | 5. Barley.               |
| 2. Turnips.       | 6. Turnips.              |
| 3. Barley.        | 7. Barley.               |
| 4. Turnips.       | 8. Seeds for four years. |

Mr. Parkinson, on lands at a great distance from the dunghill,

1. Pare and burn for turnips, ten sheep per acre.
2. Barley.
3. White clover for one year, ten sheep an acre.
4. Turnips marled or limed, ten sheep an acre.
5. Oats or barley.
6. Seeds one year, ten sheep an acre.
7. Turnips, and so again.

By this, the land receives the manure of twenty sheep in three years; whereas, if it was kept in pasture, it would support only two sheep an acre, in summer, and not one in winter, without assistance; and barley straw to make more manure.

Mr. Elmhurst's course on new inclosed dry land, which has been open field arable,

1. Early grey pease.
2. Turnips.
3. Turnips, limed, four chaldron per acre.
4. If the land is not quite clean, turnips a third time; but more commonly barley, six quarters.
5. Wheat, often five quarters.
6. Seeds, left for a term of years, according to circumstances.

But this very intelligent cultivator on cold or strong clay land, old pasture, proceeds in the following course;

- |                            |                              |
|----------------------------|------------------------------|
| 1. Pare and burn for rape. | 4. Battledore barley.        |
| 2. Rape.                   | 5. Wheat.                    |
| 3. Rape.                   | 6. Seed, left for sheep, &c. |

At Ranby, on good land,

- |             |            |
|-------------|------------|
| 1. Turnips. | 3. Clover. |
| 2. Barley.  | 4. Wheat.  |

On poorer light land,

1. Turnips.
2. Barley or oats.

If a difference, it is a crop of pease rarely added; after six years, laid to seeds for two or three years; white clover and hay seed.

Mr. Smith at South Elkington,

1. Pease or oats on seeds.
2. Turnips.
3. Barley.
4. 5. 6. Seeds.

But on better land he takes,

1. Turnips.
2. Barley.
3. Clover, mown the first growth, fed the second, and adds, sometimes, but not often,
4. Wheat.

On clay soils,

- |            |                        |
|------------|------------------------|
| 1. Fallow. | 3. Seeds one year.     |
| 2. Wheat.  | 4. Beans on one earth. |

The Rev. Mr. Allington, at Swinop,

- |                     |                 |
|---------------------|-----------------|
| 1. Turnips.         | 4. Barley.      |
| 2. Barley.          | 5. 6. 7. Seeds; |
| 3. Turnips manured. |                 |

On the better land, ploughs up the seeds, after two years, for wheat or pease. This course Mr. Allington considers as a very improving one; the only objection which occurs on the soils, that are chalky, and where the turnips are manured, and the largest, is that his sheep have died much, when on them, of the red water.

Mr. Holdgate, upon his warren land at Thoresway;

1. Pare and burn for turnips.
2. Turnips.
3. Barley.
4. 5. Seeds two years, and then laid out to the rabbits.

Too much cannot be said in praise of such excellent management; the taking two crops in succession of turnips, is capital husbandry;—the second crop is ploughed for thrice, and it is twice as good as the first.

Mr. Ellison, at Sudbrook, on sand,

1. Oats on seeds.
2. Turnips.
3. Barley.
4. Seeds two to four years.

On clay land,

1. Summer fallow.
2. Barley.
3. Seeds two or three years.
4. Wheat or beans, and then fallow;

has tried wheat after beans broad-cast, but not hand hoed; it would not do; got four quarters of beans; but the wheat bad.

Mr. Moody at Riseholm,

1. Turnips.
2. Barley.
3. Seeds, two quarters.
4. Wheat.

Also on stiff land,

1. Fallow.
2. Wheat.
3. Seeds, two quarters.
4. Oats.

Again,

1. Turnips.
2. Barley.
3. Seeds, two quarters.
4. Pease or tares.
5. Wheat.

On strong land at Claypool,

- |                   |           |
|-------------------|-----------|
| 1. Summer fallow. | 3. Beans. |
| 2. Barley.        | 4. Wheat. |

Excellent husbandry ; but they are also disgraced with

- |            |           |
|------------|-----------|
| 1. Fallow. | 3. Beans. |
| 2. Wheat.  |           |

Upon the red sand at Marston,

- |                   |                               |
|-------------------|-------------------------------|
| 1. Oats on seeds. | 3. Barley.                    |
| 2. Turnips.       | 4. Seeds three or four years. |

Mr. Walker of Woolsthorpe on very good red sand,

- |             |           |
|-------------|-----------|
| 1. Turnips. | 4. Oats.  |
| 2. Barley.  | 5. Seeds. |
| 3. Barley.  |           |

West of the great north road to Belvoir Castle, chiefly red creech land, sandy loam mixed with stone ; and some deeper.

1. Turf broke up oats.
2. Turnips.
3. Barley.
4. Seeds for two or three years fed with sheep.

- |             |             |
|-------------|-------------|
| 1. Oats.    | 4. Clover.  |
| 2. Turnips. | 5. Wheat.   |
| 3. Clover.  | 6. Turnips. |

This, on good land ; as on the lightest they do not sow wheat. These courses, the best managers, for there are many under a much worse husbandry.

About Grimsthorpe many turnips, especially on the creech land.

- |                  |                           |
|------------------|---------------------------|
| 1. Turnips.      | 1. Turnips.               |
| 2. Barley.       | 2. Barley ; this the best |
| 3. Wheat, on the | mode for poor creech.     |
| good creech.     |                           |

On clay,

- |            |           |           |
|------------|-----------|-----------|
| 1. Fallow. | 2. Wheat. | 3. Beans. |
|------------|-----------|-----------|

On some white loose sand,

1. Turnips.
2. Oats ;

it will bring neither barley nor wheat, but good turnips and good oats.

---

Upon this greatest of all objects in arable management, I must divide what I have to remark into two considerations. 1. Strong land. 2. Turnip soils.

Upon strong land, the only courses which appear to be very good, are,

*Mr. Hoyte,* 1. Beans; 2. Wheat; 3. Beans; 4. Wheat.

*At Haxey,* 1. Fallow; 2. Barley; 3. Beans; 4. Wheat.

*Mr. Linton,* 1. Beans; 2. Wheat.

*Mr. Ellison,* 1. Fallow; 2. Barley; 3. Seeds; 4. Wheat.

*At Claypool,* 1. Fallow; 2. Barley; 3. Beans; 4. Wheat.

The first and the third of these are perfect, when the soil is rich, or manure in plenty: if fallows are esteemed necessary, the others are certainly good courses. But these instances are few in so long a detail. Upon the whole, the article is nearly a blank, and the common system of the country is, 1. Fallow; 2. Wheat; 3. Beans; and, greatly to its disgrace, equally in inclosures and open fields: there is a barbarity in this rotation which admits no excuse. The peculiar quality of beans is to prepare well for wheat; and of all tolerable preparations, fallow and dung is the most unprofitable. To follow beans by fallow, is to secure a slovenly management of the former; for who will treat them in a better manner when his *no lease* ties him to fallow after them? Every link in the chain is equal folly; to be lamented in the thralldom of open fields, but to be severely reprehended in inclosed lands. I have recommended to many persons in Lincolnshire some courses which it may not be improper to note here.

## 1. Without a fallow,

- |                    |           |
|--------------------|-----------|
| 1. Beans.          | 4. Beans. |
| 2. Oats or barley. | 5. Wheat. |
| 3. Clover.         |           |

Upon lands in which clover succeeds with wheat, and which are better adapted to wheat than spring corn,

- |            |           |
|------------|-----------|
| 1. Beans.  | 4. Beans. |
| 2. Wheat.  | 5. Wheat. |
| 3. Clover. |           |

2. With a fallow, where it is apprehended that the culture of beans is not sufficiently understood to be depended on for cleaning the land,

- |                              |            |
|------------------------------|------------|
| 1. Fallow.                   | 3. Clover. |
| 2. Oats, or barley or wheat. | 4. Beans.  |
|                              | 5. Wheat ; |

and should a fallow be wanted but once in seven years, to add, 6. Beans. 7. Wheat.

All these courses are proposed on the supposition of beans, when managed to the best advantage, being adequate to keeping the soil clean. The misfortune of fallowing is, its depending for effect so much on the season ; in a wet year it fails so entirely that the year is lost ; no crop is had, and the land increases perhaps in foulness. I this year saw hundreds of acres that had not been once ploughed in September, over-run with all manner of trumpery ; and other lands, not in better order, that had been once broken.

2. Turnip soils.—Here the spectacle of Lincoln husbandry is seen to vastly greater advantage. I was much surprised to find the immense and rapid progress turnips had made since I was before in the county. A glance of the most careless eye over the preceding minutes will shew that they enter very generally into the courses on dry land :—that the Norfolk husbandry of, 1. Turnips; 2. Barley ; 3. Clover ; 4. Wheat, is very well estab-



lished ; and that improper deviations do not often occur. But the merit of the farmers of Lincolnshire goes much farther, for in some very singular courses they must be classed among the best cultivators in the kingdom.

*Mr. Thorold*, 1. Cole fed ; 2. Oats.

*Mr. Chaplin*, 1. Turnips ; 2. Barley.

*Mr. Wilson* ; at Grimsthorpe ; *Mr. Bourne* ; at Asgarby, on the *Wolds*, and at *Normanby*, 1. Turnips ; 2. Barley ; 3. Turnips ; 4. Barley ; 5. Seeds for three years ; 6. Wheat or oats.

*Norton*, 1. Turnips ; 2. Barley ; 3. Seeds two years ; 4. Pease ; 5. Wheat.

*Ditto*. 1. Cole ; 2. Grass seeds.

*Mr. Lloyd*, *Mr. Hyde*, *Mr. Parkinson*, and at *Ranby*, 1. Turnips ; 2. Barley ; 3. Seeds for three years.

*Mr. Allington*, 1. Turnips ; 2. Barley ; 3. Turnips ; 4. Barley ; 5. Seeds three years.

*Mr. Holdgate*, 1. Turnips ; 2. Turnips ; 3. Barley ; 4. Seeds for several years.

These are very singular courses, and which, upon various accounts, obvious to a practical reader, prove uncommon merit in the farmers. Men who manage thus, shew that they have no undue eagerness to raise all the corn they might do, but attend with solicitude to keeping their land clean and in heart. There are many districts in this kingdom where the occasional adoption of these courses would work a considerable improvement.

#### SECT. 4.—*Crops commonly cultivated.*

##### *Corn, Seed, and Produce.*

ON breaking up the rich commons of Long Sutton, the corn products have, for seven years, been very great ; oats 10½ quarters, and wheat 5 qrs. which continue to be the crops at present.

On the black peat land in Deeping Fen, Mr. Graves has had 8 and even 10 quarters of oats, after cole, on paring and burning: he sows 6 bushels. There is now a crop of barley in the Fen, estimated at 12 qrs. an acre.

Corn in general upon the rich arable of Holland Fen, &c. of an inferior quality and price, which is of course occasioned by the extraordinary fertility giving such a luxuriance of straw.

All corn in Holland Fen hand-weeded at a great expence; if the season is such as to encourage weeds, the expence amounts to 10s. or 12s. an acre, on an average of the country round. But good farmers have reduced this expence to 2s. 6d. from 5s. Mr. Stephenson of Swinehead thinks the time of manuring being changed, has had in this respect a great effect; for instead of manuring for cole, he has spread it on layers, and this has lessened the quantity of weeds.

In Holland Fen, oat seed, six bushels of Poland, 5 of short small; crops 7 quarters all through. Wheat seed 8 to 12 pecks; crop 4 quarters through. Flax seed, 2 bushels; cole, a quarter to half a peck; a little barley and beans, but not much.

Sowing barley, 8 bushels an acre, for mowing to soil horses, &c. with in the stable, a singular husbandry in Holland Fen, at three mowings an acre will support ten horses.

Mr. Cartwright, after cole, worth 50s. an acre, gets 8 qrs. of oats, then 4 qrs. of beans, and then 4½ qrs. of wheat.

The quantity of oat seed in Holland Fen is 6 bushels an acre; but Mr. Cartwright tried an experiment in 1797, of comparing 6, 7, and 8 in the same field; can only judge by the eye yet; the best crop is where the 6 and 7 bushels were sown, but the 8 worst. Of the two former no perceptible difference. In another field 5 strike were sown, and the crop as fine as possible.

Mr. Hoyte, on middling land, sows 3 bushels of barley,

and gets 5 quarters; wheat 4 quarters; pease seed 3 bushels: crop  $3\frac{1}{2}$  qrs.

Around Folkingham, seed and crop,

Wheat 3 bushels, crop  $3\frac{1}{2}$  quarters.

Barley 3 ———, ——— 5

Oats 5 ———, ——— 6

Beans 4 ———, ———  $3\frac{1}{2}$

In the new inclosures above Belton, that were field land,

Barley seed 4 bushels, crop 4 to 5 quarters.

Wheat ——— 3 ———, ———  $2\frac{1}{2}$  qrs.

Oats, black or brown, 4 bush. white, 6 to 8; crop 5 qrs.

In the inclosures from the Heath, crop of barley 3 quarters; oats 4. No wheat.

At Leadenham, Barley seed  $4\frac{1}{2}$  bushels, crop 4 qrs.

Wheat — 3 ditto.

This on land that will not give red clover to mow, and at 10s. rent.

The corn weeded in the newly cultivated fens below Blankney, &c. 12s. an acre. Yet I saw there some oats and barley dreadfully over-run with sow-thistles.

At Hackthorne, &c. on the new inclosures north of Lincoln, Barley 4 bushels, crop  $3\frac{1}{2}$  quarters.

Wheat 3 ———, ——— 3

Oats 5 ———, ——— 4

About Norton Place, extending several miles,

Barley seed 3 bushels, crop 2 to 6 quarters; average under 4.

Wheat seed 3 bushels, crop  $2\frac{1}{2}$  to 3 quarters.

Mr. Harrison has had 5 quarters of beans clear to market.

Henry Dalton, Esq. at Knaith, and others his neighbours, on the sand district which rises from the Trent,

Barley seed 4 bushels, crop 5 quarters.

Wheat do. 10 pecks, ——— 3

Rye do. 8 ditto, ———  $3\frac{1}{2}$

At Haxey, in Axholm,

Wheat seed 9 pecks, crop 24 bushels, 30 great.

Barley — 4 bushels, crop 4 quarters, up to 6.

Oats — 4 —, from 4 qrs. to 8; 5 average.

Beans — 14 pecks, 36 bushels, very good; average 30. Some drill beans.

At Butterwick in the Isle their crops are,

Wheat, 5 qrs. sometimes less.

Beans, 4 qrs. never rise to 7.

Flax, 50 stone,

Hemp, 50 stone, and more.

Potatoes, 100 sacks, but a very good crop.

About Normanby, Burton, &c.

Wheat seed  $2\frac{1}{2}$  bushels, crop 3 qrs. average; but at Winterton 4.

Barley — 4 —, — 4

Beans — 4 —, — 3

Rye —  $2\frac{1}{2}$  —, —  $3\frac{1}{2}$

The weaker the land the more the seed; rye very subject to blight, and winter sown most.

In the new inclosure of Barton,

Wheat seed  $3\frac{1}{2}$  bushels, crop 4 quarters, sometimes 5.

Barley — 4 —, — 4 or 5

Beans, — 3 —, but few; crop near 7 quarters last year; 4 qrs. common.

Mr. Graburn has sown 4 bushels of wheat on poor Wold land, and not too much; but on the low land on the Humber, rape seed produces to 5 quarters, oats to 13 qrs. and all crops very great.

Mr. Graburn sows 7 bushels of oats, some only 6. Has had beans 9 feet high, 75 pods on one stalk, and 3 or 4 stalks from one bean on the marsh land by Humber. On this crop he sowed two bushels an acre, broad-cast; and

dibbled some still less ; but in common they sow 4 bushels. The crop 5 quarters an acre, but promised to be 7.

Mr. Buryman at Saxby had 33 quarters of barley from 4 acres of Wold land, after manured turnips ; the land in great condition, but not beyond the average in quality.

In Barrow Field, 5 earths on fallow open field, sow 10 pecks of wheat ; crop  $2\frac{1}{2}$  quarters per three-rood acre. Plough once for beans.

At Wintringham they sow 4 bushels of barley, 3 of wheat on clover, but 10 pecks on fallow ; crops are very large. Wheat, on new broken up warp marsh, 5 or 6 quarters ; on other soils 4 or 5 qrs. ; barley 5 or 6 qrs. and sometimes 7. Oats, 8 to 10 and 12 qrs., on marsh ; on other soils, 5 or 6 qrs. Beans horridly managed, broad-cast 5 qrs. Their clover land wheat is better in both quantity and quality than the fallow, which gives too much straw ; and it is better after two mowings than one or none.

On the new inclosed Barton Marsh, Mr. Scrivenor got rape seed, on paring and burning, 4 qrs. an acre ; then oats 10 qrs. at the least ; the Tartarian sort were on the worst land, and much better than Poland on the best ; then oats again, 10 quarters more. Also oats on another piece twice, first crop 8 qrs. second 6 qrs. Some on old pasture have produced 13 qrs. an acre, Poland.

About Brocklesby on the Wolds, wheat seed used to be 2 bushels, now  $3\frac{1}{2}$  or 4. Barley 4. Oats 7. Pease 3. Beans 3. Turnips  $1\frac{1}{2}$  to 3 lb. The quantity of seed wheat high ; but they say their winters are so severe that much is destroyed. Crops ; wheat  $2\frac{1}{2}$  quarters ; barley  $3\frac{1}{2}$  qrs. ; oats 5 ; pease 3 ; but the yellow rouncivals succeed so well that six are sometimes gained. Beans 3.

At Belesby they have a practice lately introduced, which is to baulk their turnip land on strongish soils, that is lap a furrow on unstirred land ; then harrow down, and cross plough it clean ; but on Wold land plough clean, twice

for barley; sow 4 bushels, crop on Wold land  $4\frac{1}{2}$  qrs; on strong soils 3 to 6; average 5. Down on the Clays 4; sow  $4\frac{1}{2}$  to 5 bushels of beans; average crop not 3 qrs.; some 6, but uncommon.

An uncommon crop in Lincolnshire is tares; I heard of very few. Mr. Lloyd of Belesby cultivates them, both for soiling in the yard, and also for feeding sheep; five acres last year kept 50 sheep two months.

Mr. Parkinson has sown some every year for five or six years, but they do not answer, and he intends giving them up; the climate not warm enough.

At Humberston they sow 8 to 12 pecks of wheat, and the crop 2 to 3 quarters, if more, very good. Of barley they sow 4, and gain 3 qrs.; for three or four years past this crop has missed much, and I viewed some very inferior to the soil. Of oats they sow 7 or 8, and get 4 qrs. Beans, sow 4 or 5, and get 3 or 4 qrs.; the latter very good. Such is the farmer's account.

About Saltfleet, when Marsh land is broken up, oats yield 10 or 12 quarters; cole seeded 5 qrs.; oats following, 9 or 10 qrs.

Seed about Louth, beans 5 bushels; barley 5; wheat 3; oats 6 to 8; turnip seed 2 to 4, and even 7 lb.

About Dalby, wheat seed 14 pecks; barley 5 bushels; oats 8 bushels; turnip seed 4 lb. Crops on an average, wheat 3 quarters; barley nearly 4 qrs.; oats  $6\frac{1}{2}$  qrs. All barley, they think should be in by the 5th of April, and better early in March.

Mr. Wright of Spilsby, barley 4 bushels; wheat  $3\frac{1}{2}$ ; oats, 5 or 6; turnip seed 3 lb. Crops; barley 5 or 6 quarters; wheat 4 qrs.; oats 7 or 8 qrs. A last has been gained on the low ground. Some less than these.

The Miller at Welton Mill informed me, that he thought the average produce of the Clays, or Middle

Marsh, was  $3\frac{1}{2}$  quarters of wheat, and of that part of the Wolds,  $2\frac{1}{2}$  qrs. Beans 3 qrs. in the clay. They are from open fields, and never hoed.

In the hundred of Skirbeck, on the rich clay and marsh land,

Wheat seed 10 pecks, crop  $3\frac{1}{2}$  quarters.

Oats — 5 bushels, —  $7\frac{1}{2}$

Beans — 4 —, —  $3\frac{1}{2}$

Here they steep wheat seed, by adding to sea-water salt enough to make it bear an egg, and dry with lime; they have scarcely any smut. Mr. Linton, in 1782, had some smutty wheat, for which he was offered 13s. a quarter, common wheat being 25s.; he washed it in repeated waters, and dried it in the sun, and in the autumn of the same year, sold it, wheat being advanced, at 39s; he washed it in the month of June.

At Reevesby, Asgarby, &c.

Wheat seed 3 bushels, some 4, crop  $2\frac{1}{2}$  qrs.

Barley — 4 —, —  $3\frac{1}{2}$

Oats — 5 —, — 5

Mr. Parkinson sows,

Of Wheat 2 bushels, his crop 3 quarters.

Barley 2 —, —  $4\frac{1}{2}$

Oats 4 —, — 8

Pease 1 —, —, in drills 3, broadcast from 1 to 6 qrs.

At Ranby, on good land,

Of Wheat seed 3 bushels, crop 3 quarters.

Barley — 4 —, —  $3\frac{1}{2}$  qrs.

Oats — 6 —

Pease — 5 —

Ditto, on bad,

Barley —  $2\frac{1}{2}$  qrs.

Oats — 4

Pease — 3

Mr. Elmhurst sows 4 bushels of barley, and gets 6 qrs. has had 8; and his best crops have been from seed procured from about Rougham in Norfolk; 4 bushels of wheat, crop often 5 quarters.

Mr. Thomas Tannard of Frampton observed to me, in discourse upon the mildew in wheat, that upon a field on one half of which soil, barley was sown, and upon the other half beans; the year following all was under wheat, which crop was mildewed to an inch after the barley, and not at all after the beans. Upon which I observed, that barley and beans being in the same field, seemed to imply, that one part of the field was a dry soil, and the other probably clay or wet loam, and that it was the soil caused the mildew, and not the preceding crop: he agreed entirely, and stated the fact of soil to be just so. The barberry bush was mentioned by some gentlemen present, as a cause, and instances given of the fact.

At Swinhop, &c.

Barley seed 4 bushels, produce  $4\frac{1}{2}$  quarters.

Wheat —  $3\frac{1}{2}$  ————— 3

Oats — 6 ————— 5

Mr. Ellison, at Sudbrook,

Wheat seed 10 pecks, crop 3 quarters.

Barley — 4 bushels, — 4

Oats — 6 ————— 5

Turnip — 3 lb.

I saw some land to the north of Lincoln, very near the town, that had given six quarters an acre of barley, and then seeds that kept 14 hoggets an acre.

On the strong land at Claypool,

Barley seed  $3\frac{1}{2}$  to 4 bushels, crop  $4\frac{1}{2}$  or 5 quarters.

Beans seed 2 bushels, set by hand, or drilled, crop  $4\frac{1}{2}$  or 5 quarters.

Wheat seed 3 bushels, crop  $3\frac{1}{2}$  to 4 quarters.



About Woolsthorpe,

Barley seed 3 bushels, crop  $4\frac{1}{2}$  quarters.

Oats — 6 — 6

Wheat —  $2\frac{1}{2}$  —  $3\frac{1}{2}$

About Grimsthorpe,

Barley seed 3 bushels, crop 3 to 6; average  $4\frac{1}{2}$  qrs.

Wheat —  $2\frac{1}{2}$  and 2, — 3 to  $3\frac{1}{2}$  qrs.

Oats — 8 to 4, — 4 to 6

Beans —  $2\frac{1}{2}$  or 3, — 3 to 7, average 4 qrs.

All, exclusive of Fen and open fields; in the latter, the crops are worse, and the Fens better.

## RECAPITULATION.

Places.	Wheat.		Barley.		Oats.		Beans.	
	Seed bush.	Crop qrs.	Seed bush.	Crop qrs.	Seed bush.	Crop qrs.	Seed bush.	Crop qrs.
Long Sutton -	—	5	—	—	—	10½	—	—
Deeping Fen -	—	—	—	—	—	9	—	—
Holland Fen -	2½	4	—	—	6	7	—	—
Mr. Cartwright	—	4½	—	—	—	8	—	4½
Folkingham -	3	3½	3	5	5	6	4	3½
Belton -	3	2½	4	4½	7	5	—	—
Ditto Heath -	—	—	—	3	—	4	—	—
Leadenham -	3	—	4½	4	—	—	—	—
Hackthorne -	3	3	4	3½	5	4	—	—
Norton -	3	2½	3	4	—	—	—	—
Knaith -	2½	3	4	5	—	—	—	—
Haxey -	2½	3	4	4	4	5	3½	4
Butterwick -	—	5	—	—	—	—	—	4
Normanby -	2½	3	4	4	—	—	4	3
Winterton -	—	4	—	—	—	—	—	—
Barton -	3½	4	4	4½	—	—	3	4½
Mr. Graburn -	4	—	—	—	7	—	4	5
Mr. Scrivenor -	—	—	—	—	—	10	—	—
Barrow -	3	3	—	—	—	—	—	—
Wintringham -	3	5	4	6	—	7	—	5
Brocklesby -	3½	2½	4	4	7	5	3	3
Belesby -	—	—	4	5	—	—	4½	3
Humberston -	2½	3	4	3	7½	4	4½	3½
Saltfleet -	—	—	—	—	—	10	—	—
Louth -	3	—	5	—	7	—	5	—
Dalby -	3½	3	5	4	8	5½	—	—
Spilsby, Mr. Wright	3½	4	4	5½	5½	7½	—	—
Welton -	—	3½	—	—	—	—	—	3
Ditto -	—	2½	—	—	—	—	—	—
Skirbeck -	2½	3½	—	—	5	7½	4	3½
Reevesby -	3½	2½	4	3½	5	5	—	—
Mr. Parkinson -	2	3	2	4½	4	8	—	—
Ranby -	3	3	4	3½	6	—	—	—
Ditto -	—	—	—	2½	—	4	—	—
Mr. Elmhurst -	4	5	4	6	—	—	—	—
Swinop -	3½	3	4	4½	6	5	—	—
Mr. Ellison -	2½	3	4	4	6	5	—	—
Claypool -	3	3½	3½	4½	—	—	2	4½
Woolsthorpe -	2½	3½	3	4½	6	6	—	—
Grimsthorpe -	2½	3½	3	4½	6	5	2½	4
Average -	3	3½	3½	4½	6	6½	3½	3½

These averages are, upon the whole, respectable : that of wheat is beyond the medium of the kingdom ; and barley being chiefly in light land districts, not of a high rent, is not small ; oats are considerable : but soil considered, beans are too low ; and even  $3\frac{1}{4}$  are beyond the fact, were all the open fields included.

### *Beans.*

In Holland Fen they are drilled and horse-hoed by some farmers, at 2 feet.

About Folkingham, most of the farmers either dibble or drill ; on sward, one row on a flag dibbled ; drilled at 18 inches : most horse-hoe with an expanding horse-hoe, and hand-hoe besides. Hand-hoe the dibbled.

Mr. Hoyte has cultivated beans with success ; he has dibbled 2 bushels an acre on old sward, and got 5 quarters ; and as much by drilling them on manure.

In the strong land open fields near Belton, they are cultivated broad-cast without any hoeing ; and the crops and husbandry as may be supposed.

At Hackthorne there is some dibbling ; Mr. Cracroft has planted wheat in this manner, at 9s. an acre ; also beans and pease, beans on flag sward land has given good crops.

Mr. Webster, at Bankside, drills his beans on ridges, a double row at 9 inches, with intervals of 27 inches : he has some equidistant at 12 ; but prefers the former : he is a great friend to the drill, uses only Mr. Cook's.

About Normanby, &c. they drill beans in a very singular course ; they summer fallow, and then drill beans ; hoeing, and sow wheat after. The more common way is to plough the land into narrow ridges, then sow, broad-cast, and harrow down the ridges ; the crop comes up in rows ; hand-hoe and weed but few, and little. Mr. Robert Sutton does it well : and he dibbles much

upon sward, and with good success. Mr. Goulton, at Alkborough, last year (1796), dibbled pease on sward; and got, from 3 acres, 7 quarters an acre, wanting 1 bushel on the 3; the grass had been down four years; some ray in it; 5 or 6 pecks seed an acre.

At Belesby, they plough once for broad-cast; but twice for drilling; hoe both: get no more one way than they do the other; but the land is cleaner after the drill; by which means Mr. Lloyd, who is an excellent farmer, follows them with wheat. Produce beans up to 6 quarters, but uncommon. His mode of drilling is cheap and simple. He ploughs for them before winter: in the spring, ploughs clean, but shallow, with one horse in a small light plough; and drills every third furrow with a barrow drill, run by hand. These one horse ploughs he uses in ploughing for turnips also.

At Alesby, Mr. Skipwith practices a singular course for Lincolnshire; 1. turnips, 2. barley, 3. clover, 4. beans, 5. wheat. The putting in beans upon clover I have recommended to many farmers; but, till now, I have not met with an instance of it in the county: he observes, that beans are always good on clover; he harrows them (5 bushels) in on one earth, and feeds with sheep till near blossoming, wanting hands for hoeing; hence he is forced to miss the wheat after, when the land is foul, and take turnips; which, with a better bean culture, would not be the case.

Mr. Linton of Frieston has made an experiment, extremely interesting for Lincolnshire; he has conducted it for five years; it is this course, 1. beans, 2. wheat.

In autumn he ploughs and grips the land for beans, and manures for them 10 tons an acre, once in four years. In the spring, ploughs once or twice, according to the state of the land, in order to have a tilth for drilling and hoeing. In March puts in the crop, by drilling, 11 pecks

an acre, in rows about 2 feet asunder ; as soon as they appear, harrows ; and, when weeds come, shims them with the expanding horse-hoe, which is repeated rather deeper than before, as the beans advance ; after which they are hand-weeded ; immediately before the blossoming, they are earthed up, with the mould boards added to the hoe. He usually tops them after the pods are sufficiently set, by a man taking two rows with an unsawed sharp reaping hook. The produce, 4 quarters. After harvest immediately harrow the stubble, and carry off the rubbish ; then plough once, sow, and harrow in the wheat ; which produces from 3 to 5 quarters, on land of 21s. an acre.

*Expences.*

					£.	s.	d.
Manure, 10 loads	-	-			2	12	6
Ploughing thrice, and harrowing			-		1	0	0
Seed, 11 pecks, at 32s.	-	-	-		0	11	0
Drilling with barrow	-	-	-		0	0	6
Harrowing	-	-	-	-	0	1	0
Shimming twice	-	-	-	-	0	3	0
Weeding	-	-	-	-	0	4	0
Double mould boarding	-	-	-	-	0	1	6
Topping	-	-	-	-	0	2	0
Reaping	-	-	-	-	0	9	6
Leading, &c.	-	-	-	-	0	6	0
Thrashing	-	-	-	-	0	5	0
Carrying out	-	-	-	-	0	3	0
<i>Wheat.</i> —Harrow, stubble, and clearing					0	5	0
Ploughing	-	-	-	-	0	5	0
Seed, 10 pecks	-	-	-	-	0	15	0
Sow and harrow	-	-	-	-	0	2	6
Carried forward	-				7	6	6

			£.	s.	d.
<i>Wheat</i>	Brought over	-	7	6	6
Weeding	-	-	0	10	0
Reaping	-	-	0	15	0
Leading, &c.	-	-	0	5	6
Thrashing 4 quarters	-	-	0	10	0
Carrying out	-	-	0	3	0
<i>Beans</i> —as before, except manure	-	-	3	6	6
Wheat as before	-	-	3	11	0
Four years rent	-	-	4	4	0
Four years tithe	-	-	1	4	0
Four years town charges	-	-	0	14	0
			22	9	6

*Produce.*

Eight quarters of wheat, at 42s.	-	16	16	0
Straw of two crops, as manure is charged	-	0	16	0
Beans, 8 quarters, at 32s.	-	12	16	0
Straw	-	0	9	0
		30	17	0
Expences	-	22	9	6
Profit	-	8	7	6
Per acre, per annum	-	2	1	10

But Mr. Linton remarks, that in this calculation, though nothing is exaggerated, still expences will run higher; and articles of tillage, and wear and tear, will amount to some small matter more; and interest of capital, at £5. an acre, will be 20s. in the four years. Enough will, however, remain to prove, that this course

of crops is vastly important ; and I need not add, that it is what I have recommended in various parts of the county.

Mr. Hebb, of Claypool, cultivates beans with great success, upon seeds of six, seven, or eight years, &c. ; he dibbles them across the lands, upon one ploughing, the rows 2 feet asunder. On other lands he sprains in the seed by hand, in every third furrow. In the former way he only hand-hoes, and gets the largest crops, up to 6 quarters an acre, of a quality remarkably fine. Those that are drilled, as above, he horse-hoes with the expanding shims mentioned before, and earths up ; cutting weeds in the rows with hand-hoes. I saw his stubble this year, which, for so wet a season, was clean. Crops up to 6 quarters.

This article of beans, in Lincolnshire, is so important, that I have been induced to treat the article by itself, to shew how very few instances occurred of good management. As a general fact, it is to be stated, that this crop is broad-cast, never hoed, full of weeds, and wheat consequently not following them. In the wet open fields, fallow usually succeeds. This management is so bad and unprofitable, compared with a better system, that there is scarcely an object in the husbandry of the county which wants more reforming. The preceding accounts were taken as information: I saw very few, if any crops, that merited the least attention ; and I am inclined to think, that drilling beans is well understood by very few persons indeed. It is every where a difficult operation on lands wet and strong ; so that I am inclined rather to recommend dibbling them on layers, upon the seed earth. Such soils preclude early tillage in the spring, if they have been previously ploughed ; and it is very advantageous to be able to get upon them with the teams at pleasure ; a point only to be effected on a ley. One row

may be dibbled on every second furrow, in which case they will be equidistant 18 inches ; or, two furrows being dibbled, and one missed, they will rise in double rows at 9 inches, with intervals of 18 ; equal to a row at every  $13\frac{1}{2}$  inches, in which method I have raised good crops, on land much inferior to the Lincoln soils. Horse and hand-hoeing, and weeding, are absolutely essential : the more money thus bestowed, the better for the farmer ; those of Kent are dissatisfied, if the expence does not rise from 17s. to 20s. an acre, as the crop of wheat is sure to suffer, if any neglect takes place in these respects. There is no better preparation, than beans well managed. After harvest, the stubble, in that county, is *broad shared* or *shimmed*, to cut up all weeds remaining, till, by harrowing, it takes the appearance almost of a well ordered garden-bed. Farmers, in this enlightened age, travel : a Lincolnshire one, with land proper for this crop, could not do better than view the Kentish management during the growth, and after harvest : he would return home with ideas, which he did not before possess. In general, the Kentish bean land is lighter ; but he will at once see that their system is applicable on all soils. If a Lincoln strong land farmer will calculate the expences and produce of 1. fallow ; 2. wheat ; 3. beans ; with the vastly better management of 1. fallow ; 2. oats or wheat ; 3. clover or seeds ; 4. beans ; 5. wheat ; supposing a fallow periodically necessary (which I do not admit), he will find the superiority of the latter so great, as to induce him to exert himself with vigour, for the introduction of such a culture of beans as shall secure success.

#### *Seeds.*

This term is given in Lincolnshire, as well as in many other districts, to the artificial grasses which are sown in common rotations. In most parts of the kingdom there



is an idea, that they will not endure, with profit, above one, two, or three years, according to the sorts; when instances to the contrary occur, they should be noted, that the circumstances on which they depend, may, at length, be ascertained, and disappointments prevented.

Mr. Chaplin, of Blankney, sowed white clover, cow grass, rib grass, and hay seeds, in a course, meaning to leave it while it was good: it remained nine years, answering well to the last; no ray, as he does not, on experience, approve of that grass.

Mr. Dalton, at Knaith, finds that trefoil on his sandy land is remarkably profitable; he has summered, from the end of April, to the end of August, 30 shearlings, on  $3\frac{1}{2}$  acres, the first year.

Ray grass has been cultivated many years, but is now leaving off very generally; yet, upon the very poorest sands, they can get nothing else; but it is objected to by all the landlords that are attentive from, long conviction, that land always breaks up poor after it; and this, not from landlords' ideas, but the information given to the gentlemen I conversed with, by very good farmers. Instead of it prefer white clover 8lb.; rib 1lb.; trefoil 7lb.

Mr. Goulton finds that these seeds will last good four years. An acre of seeds, if good, will keep, at Alkborough, 10 sheep from May-day to Michaelmas; red clover; but nothing else so much.

Very fine seeds in Barton field new inclosure, will keep 7 sheep per acre, besides a two-year old beast: the latter till Midsummer. The seeds sowed are white clover, and hay seeds; 14lb. of the clover, and 2 quarters hay seeds.

Mr. Goulton, of Onby, sowed seeds alone in June, upon poor wold land of a cold quality; trefoil and ray grass, part turnips, part oats the year before; ploughed for them; some part four times, some less. Now, in Sep-

tember, they look very fine, and promise well ; intends to pasture them soon with lambs.

Mr. Graburn has sown seeds with rape, and found it answer well, and much better than with corn. Mr. Curtis, of Ashby, near Grimsby, did the same ; and when the rape was fed off, every one thought the seeds were destroyed ; but they were the best on the farm.

Mr. Richardson, at Great Lumber, on the Wolds, with the barley, after paring and burning for turnips, sows white and red clover, and trefoil, leaving it three years ; the first it carries 6 sheep an acre ; the second 5 ; and the third 3 per acre. He, for many years, disliked ray grass much ; but its value early in the spring is so great, *on dry land*, that he is now changing his opinion, and sows it.

Mr. Clough, of Gayton, near Louth, never sows ray ; it is good only at one short season ; and impoverishes the ground, on comparison with any other sort of seeds. I asked him if this opinion was general ; few, he replied, will now have any thing to do with it ; but it has been common.

About Reevesby, Asgarby, &c. they like white clover alone on sandy land, for feeding sheep ; because they find it ploughs up cleaner from twitch, than it does when other mixtures are sown ; 12 or 14lb. an acre. Mr. Parkinson finds that his land will not produce red clover in a four years course more than two rounds ; he then changes to 1 bushel ray grass, 6lb. trefoil, and 6lb. of red clover for one round ; and the next round 8lb. cow grass, and 6lb. of Dutch clover ; cow grass yields a wonderful burthen of hay, 9 inches in length on wold lands more than red clover ; but the red clover yields the best eddish : it will last two or three years ; but better to plough sooner.

Mr. Cracraft of Keal, summers 10 sheep an acre on white clover only, upon sands marled.

The Rev. Mr. Allington of Swinop, has tried York-

shire white, and finds that it does not answer ; the sheep prefer ray grass, white clover, and trefoil ; which however is no proof that it does not answer.

I saw some land near Lincoln, to the north, that has kept 14 hoggets per acre, on seeds.

These practices have merit, and shew that the object in general is well understood. That of sowing grasses with rape, is new ; and is a thought that deserves attention. I heard it mentioned some years ago in conversation, as having been tried, and failed : but not seeing any reason for a want of success, I tried it myself, and it answered well. It is a management that gives full time for cleaning and preparing the land ; and for sowing at a season (July or August) probably the best, as new grass seeds are then to be had. Feeding the rape manures the seeds ; and, if done with a little attention relative to soil and weather, would very rarely be injurious ;—it is a system which should be adopted in other counties.

#### *Rape.*

Much cultivated in Deeping Fen on paring and burning ; and worth from 40s. to £ 3. an acre, fed with sheep.

In Holland Fen it is now generally fed by sheep, and is worth from 40s. to 50s. an acre ; which space will carry 10 sheep during twelve weeks ; but it is of so feeding a nature, that numbers die on it.

Two acres of land in Holland Fen has often produced a last of rape seed, now worth 50 guineas ; and seldom worth less than 30 guineas.

In the rape, which several considerable breeders about Folkingham have been accustomed to buy in Holland Fen, they have found that an acre will carry 10 sheep ten weeks, and worth 6s. per head, per week.

At Garthorpe in Axholm, rape seed 5 quarters.

In the north-west angle of the county, Gainsborough

to Barton, the farmers say, they had rather give 4½d. a week to feed sheep with rape, than 3d. for turnips.

In the Marshes about Saltfleet, this is found a very profitable crop for sheep; but one inconvenience attends it, which occasions great expence or trouble, if not fed off before hard weather comes; their fences being ditches, these freezing, let the sheep of all the country together; they smell cole to a great distance; so that a field of some acres will be eaten up in a night: 500 and more have thus been known to get together;—the piece must be netted or herdled round. When fed, they often seed it; but what is not fed yields much the better crop.

Mr. Lofft, of Marsh Chapel, remarks, that there is a vast difference in cole; that which grows on fresh land, has the stalk as brittle as glass, and will fatten sheep beyond any other food; but what grows on old tillage land, the stalk is tough and wiry, and has little proof in it. An acre of cole will fatten more sheep than an acre of turnips; but turnips will keep more stock sheep than cole.

### *Turnips.*

They are generally hoed in Holland Fen; but there are very few: rape only on a large scale.

About Folkingham, all twice hoed. One of the finest crops of turnips I have any where seen, was upon the farm of Mr. Dawson, at Berthorp, near Folkingham. In 1795, the field was ploughed from the old sward; it was sown after tares on a barley stubble, part fed, part mown; the soil red loam. They had been hand-hoed twice, and as well as any in Norfolk; there was not a weed in the field, and the plants of the most beautiful luxuriance. It is a crop that does credit to Lincolnshire.

I was very much pleased with viewing the turnips

from Norton to Kirton, by the turnpike, and also by the Cliff road: the quantity great, the crops good and clean, and well hoed, with some few exceptions; it was a change from what I saw here twenty-nine years ago, striking. The best farmers hoe twice; first, 5s. 6d. per acre; second, 2s. 9d. Mr. Thorpe, at Kirton, has some drilled at  $2\frac{1}{2}$  feet, in a broad-cast field; and the latter promise to be much the greater crop.

Upon the sand, above the Trent, from Gainsborough to Newark, which extends 25 miles, they plough four or five times for turnips, feed them off with sheep, and are worth £ 4. an acre.

Excellent turnip hoeing about Alkborough, &c. set out well; 5s. to 6s. for first hoeing; the second, by day; but if let, 2s. 6d. There is a man at Whitton that has been a turnip hoer thirty-eight years.

At Wintringham they hoe once, and hand weed. I ought to observe, that upon this admirable soil, I found this crop well managed, and the products very fine. All fed by sheep.

At Barton, hoe once.

About Brocklesby, the chief improvement that has taken place, in cultivation, is the great increase of turnips; and this has depended a good deal on the practice of paring and burning the Wold sheep walks, and gorse covers. Turnips here are worth 50s. to 60s. an acre.

At Belesby, plough for them three or four times; hoe all; feed with sheep; value from 40s. to £ 4. They complain much of the distemper called *fingers and toes*; the root, instead of swelling, running into strings of that form, and rot, and come to nothing; it is common on all fresh land, and nothing they can do prevents it.

At Alesby also, this distemper does much mischief on all land, but most on fresh broken up. Mr. Skipwith has known it ever since he was a farmer. Tried lime,

but had no effect, in this respect ; ashes he finds the best manure to prevent it ; but not wholly. Observes that turnips always do best after wheat, and not because of manuring for wheat, which is not done, it being spread for the turnips.

About Louth they have been much plagued with fingers and toes ; they assured me, that on cutting the roots, they find a worm in them about the eighth of an inch long, and the size of a large pin ; worst on the richest land.

At Dalby they reckon that a good acre of turnips will winter 10 sheep ; and turnips, on an average, 7. They are worth £ 3. an acre. No fingers and toes ; but, at some places near, they have it.

Mr. Wright of Spilsby, hoes twice.

About Reevesby, Asgarby, &c. they hoe twice, when the weather will permit ; but the men hurry it over too fast. A good acre will winter 10 sheep ; they are worth from £ 2. 10s. to £ 4. an acre ; cole is worth 35s. to 50s. Turnips, in twenty-five years, wonderfully increased.

Mr. Cracraft of Keal, reckons that his turnips, on marled land, will winter 12 sheep an acre during twenty weeks.

The late Mr. Cod of Ranby, often observed, as Mr. Loft informed me, that turnips, of which he bought many in Yorkshire, would, on fine land, bring on sheep much faster than any at Ranby, though the size of the roots was the same.

Turnips at Ranby will winter 8 hogs an acre ; very few will carry 10 sheep.

Mr. Ellison sows 3lb. seed an acre ; hand-hoes twice, at 6s. or 7s. an acre ; feeds off all with sheep, giving oil cake at the same time.

Mr. Walker of Woolsthorpe, on rich red sand, ploughs his turnip land but once for barley.

Remembering, as I do, this county about thirty years ago, no circumstance in it surprised me more than the astonishing change effected in respect to this crop. At that time there was scarcely a turnip to be seen, where now thousands of acres flourish; and the few sown in the whole county were unhoed, except by here and there a gentleman. What a change! from such a state of backwardness, in an article so perfectly adapted to the soil, to find them now as plentiful; and, in various cases, even more so, than in some of our best cultivated counties. This has been a most meritorious progress, closely attending that first of improvements, inclosing heaths and wastes. The crop is not yet perfect in the hands of all farmers, for I cannot say that I saw none unhoed; there are some slovens remaining, who either hoe but little, or doing it by servants, and not being in a regular system, execute it in a very insufficient manner.

But immense tracts are very well managed; and, by many persons, in as capital a style as any in Norfolk. This, upon the whole, is a most happy and important change; and has had great effects in improving the size, and increasing the number, of the sheep and cattle of the county.

### *Drilling.*

In this branch of husbandry Mr. Cartwright has practiced largely, to 3, 4, and 5 score acres; and one year to 150. This year has 50. He drills equidistant, with Mr. Amos's drill, 8 inches; having found that when wheat has been at 1 foot, it ripened much later, and was an inferior crop, in every respect, to the 8 inches adjoining, which is the distance for all white corn. Beans at 24,

and 3 inches deep ; wheat  $2\frac{1}{2}$  ; and oats 2. Quantity of seed ; oats 4 bushels ; wheat 2 ; and beans 2 to  $2\frac{1}{2}$ . Is clear that a greater saving of seed than this is pernicious ; which amounts to one-fifth, upon comparison with broadcast. The object is hoeing ; breast-hoeing twice the white corn, and hand-hoeing the beans ;—the former 2s. an acre, each time ; but if the land is clean, once is enough. Also, if wanted, hand-weeded. The result has been, sometimes the crops have been better than broadcast, but not always ; on the average, it has the advantage. Thinks that the superiority is not so great with corn as with woad.

Lord Brownlow's father was at a considerable expence to procure instruments of the best kind for practicing the drill husbandry ; and spared no expence in conducting it ; but was convinced, upon experience, that it was not so profitable as the common method. There has been a good deal of drilling with Mr. Cook's plough, about Grantham ; but it does not spread ; on the contrary, many have abandoned it. I called at Mr. Scoffin's at Barston, to hear his opinion, but he was absent.

Mr. Harrisson at Norton, has tried Cook's drill, but laid it aside ; not from defects in the tool, but the husbandry *will not do here*. The soil, a friable sandy loam.

Mr. Scrivenor of Barton, drilled turnips in 1796, at 18 inches, and they were the best in the lordship ; some other persons in the neighbourhood have done the same, and with very good success.

Mr. Graburn of Barton, has drilled barley, and various other crops, and had good ones ; yet he finds the system so tedious, that he has given it up, and now sows all broadcast.

Mr. Linton has been a driller, and an attentive one of wheat, oats, and barley ; but finding that it would not answer, gave up the practice.



Mr. Parkinson for some years practiced the drill husbandry with Mr. Cook's drill, and by one from Lancashire; and has had good barley; also pease, and wheat; he has this year only 17 acres of barley drilled, and that is the worst crop on his farm.

Mr. Cod of Ranby, began drilling in Mr. Duckett's method ten years ago; he bought a complete set of his tools; and I saw some large fields of turnips that would do credit to any farmer; also a barley stubble quite clean. Mr. Lofft's opinion of this husbandry, that it answers perfectly well for turnips, and prefers it as better; the land quite clean, and at a smaller expence than the common way: he approves it also for wheat and barley; but will never use it for oats, which ought to be sown on rich land; and if not plenty of seed, the weeds will prevail; and, in proof of this, his father sowed 4 bushels of oats an acre, and the crop was weak and poor: on the same field, after a crop of cole, he himself sowed oats again, 8 bushels an acre; and had as fine a crop as could grow; and he has found this to be the case for fourteen years.\*

\* Whether it is from unskilfulness in the use of them, or that the instruments themselves have no intrinsic advantage over the common methods of husbandry, I cannot tell; but I believe it is a fact, that the whole train of drills, scufflers, scarificators, turnip hoes, &c. &c. which have been imported into this district, have never been found advantageous to their employers.

And though I am now not writing from my own actual observation, I have the testimony of very respectable farmers, that the produce of the lands of Mr. John Cod, have never compensated the expences of his management, in the same proportion with the farms of his neighbours, who have simply ploughed well, notwithstanding their management has been termed barbarous in the extreme.

As from what I have here said, it may be supposed that I condemn the drill husbandry in the lump, I think it proper to observe, that I consider drilling as the best method of sowing beans I am acquainted with; for that crop, and for that crop only, have I ever known it to answer any good purpose.

*MS. of the B.*

The turnips were ploughed for once, with Ducket's skim-soulter plough, without the skim; harrow; scuffle; once ploughed with common plough, and sometimes the miner, instead of a ploughing; then harrow; and perhaps scuffle again, and drill; the rows 9 inches; scarifies the rows 9 at a time; then cross the drills with a single rowed scuffer. Sometimes this cross in a diagonal direction; hand work to cut any large weeds, and cut out knots of plants: The horse-hoeing 9 rows at a time, will do 10 acres a day, a man, a horse, and a boy;—running over with hand-hoes, 1s. an acre.

Mr. Walker of Woolsthorpe, has practiced the drill culture largely for wheat, barley, oats, and turnips; but has left it all off:—he has a tolerable opinion of the practice in very fine weather; then the clovers answer well in this way. But he has no drilled crops on his farm except turnips. From drilling 9 gallons an acre of wheat, he has had 44 bushels an acre over 8 acres, on the deep sandy loam.

Such are the facts I met with in this inquiry; they confirm the general result through the kingdom. Drilling is a practice which will be found to answer to a certain extent; and with a certain degree of skill and attention. But when a minute attention flags, and the scale is much extended, then it is found that the conclusions drawn from one or two fields, were not applicable to a whole farm; that the necessary operations militate with other objects; and what was profit, becomes loss. Were all the men known who have tried this husbandry, and laid it aside, the advocates remaining would not figure by their number.

*Dibbling.*

Mr. Hoyte of Osbornby, dibbles beans ; and gets from 2 bushels of seed, 5 quarters. Dibbled once 6 pecks of wheat, and got 2 quarters ; but the frost destroyed much. Others have also dibbled wheat ; the expence 10s. 6d. ; and in general the crop has been a sack an acre gain, besides saving 6 pecks of seed.

Sir Cecil Wray has begun this excellent practice ; last year his dibbled wheat beat all his other crops.

Mr. Goulton has dibbled wheat with success ; and his tenant, Mr. Richard Langton, of Whitton, has this year 13 acres. Upon the whole, it has succeeded greatly.

*SECT. 5.—Crops not commonly cultivated.*

*Potatoes*—Have been largely cultivated about Spalding, but have not answered for bullocks ; one man got to 200 acres ; but was ruined, though the crops very great.

Mr. Cartwright at Brothertoft, has been largely in this crop, ever since he has been in this country ; has always had from 12 to 15, and once more than 20 acres. The land has been ploughed before Christmas ; in March it is ploughed again, and again the beginning of April, and properly cleaned of twitch, and all rubbish. About the middle of April cart out the dung ; 12 three horse loads per acre ; and immediately after three acres of dung being spread, three ploughs begin ; and the length of the furrows being divided into sixteen equal parts, one woman being stationed in each division ; and a man being fixed to every four women, he rakes the dung on to the potatoes, after the women have laid the sets in the furrows, a little on one side, to be out of the tread of the horses. Ten sacks, or 30 bushels

of potatoes, plant an acre, every third furrow ; cut large, as being preferable, but the small ones whole ; continuing thus, finish  $4\frac{1}{2}$  acres a day, each plough doing  $1\frac{1}{2}$  acre, with two horses. As soon as done, roll down with a light roller. Thus, they are left till they come up ; then harrowed lengthways with light harrows. In three or four weeks, according as the season is, skim hoe them with an expanding horse-hoe (vide Mr. Amos's book) ; when the weeds are dead, repeat it ; then begin to hand-hoe the rows at 3s. 6d. per acre ; in a week or so, earth up with double mould boards added to the hoe ;—and, in two or three weeks after repeat this. In August hand-weed them, at 1s. an acre. In October pull up the tops, and lay them on the tenth rows ; then plough them up, by first turning a furrow from the ridges, as near as can be without disturbing them ; then a large deep furrow without the coulter ; sixteen women planted at equal distances, as before, to pick into baskets ; one man to every four gatherers, unless the weather is very dry, to fork them out. The *pyes* (preserving pits) being ready, 6 inches deep, and 6 feet wide, the carts take them home. Pile in form of a roof, well covered with stubble, and earthed a foot thick to near the top, which is left open sometime to draw out the steam. Crop 480 bushels, on an average, at 80lb. a bushel.

*Expences.*

		£.	s.	d.
Four ploughings, at 5s.	-	1	0	0
Three harrowings, at 6d.	-	0	1	6
Twelve loads of dung, half price 1s. 6d.		0	18	0
Carriage of ditto	-	0	6	0
		<hr/>		
Carried forward	-	2	5	6

			£.	s.	d.
Brought over	-		2	5	6
Dung, filling and spreading	-		0	2	0
Planting, men and women	-		0	16	8
Seed, 30 bushels, cut, &c.	-		2	0	0
Rolling	-	-	0	0	6
Skim-hoe twice	-	-	0	2	0
Hand-hoe	-	-	0	3	6
Earth up twice	-	-	0	2	0
Weeding	-	-	0	1	6
Gathering tops	-	-	0	2	0
Taking up and pying	-		2	0	0
Rent	-	-	1	7	0
Taxes	-	-	0	6	0
			<hr/>		
			9	8	8
			<hr/>		

*Produce.*

480 bushels worth, in feeding bullocks,  
young cattle, horses, &c. 8d. a  
bushel

	-	-	16	0	0
Expences	-		9	8	8
			<hr/>		
Profit	-	-	6	11	4
			<hr/>		

In regard to their benefit as a preparatory to corn,—wheat is found not to succeed after them,—attributed to making the soil too loose. But get very fine oats after them ; as good as after other crops. The culture is much increased in this country.

About Folkingham they have increased very much within three or four years ; and much among the cottagers. The effect very useful. But the principal place for them is about Tattersal and Coningsby.

At Haxey, in Axholm, plough between November and Christmas; at Candlemas or Lady-day again, and three or four more. Manure 9th or 10th May, 15 loads an acre; short muck for potatoes, but long reckoned good.—Some set every other furrow, and some every third, 8 sets in a yard; rake in dung upon the sets; 8 sacks, or 24 strike plant an acre. One strong eye, or two weak, to each cutting. When they first appear, harrow along or across, the rows. In a week hoe, 3s. or 3s. 6d. an acre; when a foot high or less, hill by ploughing with common plough; but they have hilling double ploughs. Weeding is done by children. Take up by pulling up the tops, which they throw aside. Plough out, keeping the plough down under the potatoes; fixing hands in divisions, 20 yards to a gatherer. Harrow the new ridges, and pick again. Plough again in small furrows, when two or three pickers follow the ploughs, turning down the ridges; and harrow; then it is ready for wheat. Crop. Mr. Durrand has had 80 sacks of ox nobles on  $2\frac{1}{2}$  roods, or 330 bushels an acre: but this an extraordinary crop. A middling one 70 sacks, repeat them on the land every four or five years. Kidneys do not take from the soil so much as ox nobles.

Forty years ago, on Trent side, Mr. Durrand's father had hemp and flax every year; and, as to barley and wheat, could not venture it so rank and strong; but since potatoes, they have so much reduced the fertility, that corn is common, and often not good crops. The expression was, potatoes have quite killed the land.

At Butterwick in the Isle, wheat after potatoes on their inferior soils (but they have no bad land), does not succeed well; but on warp land it does well. They get to 100 sacks an acre.

At Garthorpe, in Axholm, potatoes on new land 80 sacks an acre.\*

About Normanby, Burton, &c. &c. they have increased of late very much; but Mr. Wilson thinks, that no crop can be beneficial to an estate, which returns nothing in manure. The land here is not rich enough for them. Nothing in the world exhausts and injures the land so much as potatoes; they are clear of this fact.

At Belesby, Mr. Lloyd, after barley, which yielded 5½ quarters an acre, sowed part of the stubble with tares, and the other part planted with potatoes; manure for neither. He then sowed the whole with wheat, which is now on the ground; the tare part much the greatest crop; too great, being partly down; but the potatoe part, though good, indeed the best corn, does not complain of being too rich, for none of it is down.

More potatoes about Saltfleet than formerly; but still very few, except by the poor people.

Mr. Codd, of Ranby, used to feed his horses of all sorts upon boiled potatoes, on a large scale, and with good success.

Mr. Linton, of Freiston, has cultivated them; but, though they are a valuable crop, yet the uncertainty of

\* The Isle of Axholm. The crops there of every kind are almost universally good; I never yet saw any lands so well weeded, so carefully attended to, and kept so generally clean, as those fields; the whole country is quite a garden; the hemp and potatoe crops are *here* acknowledged to be abundant; the other crops I can assert, are generally equally good. It is worthy of remark, that the potatoes produced in this neighbourhood, though, apparently, equally good, are not in reality so valuable, as those grown on the southern banks of the Ouse, in a district called Marshland; those are always preferred for the London market, and generally sell for 4s. per sack more than the Trent potatoes.

the sale, and the extraordinary attention they demand, induced him to give up the cultivation. At Leak and Wrangle there are some wastes, which the cottagers sometimes take in, and cultivate potatoes; they have no right, and are rather a lawless set; and the practice is productive, under these circumstances, of some evils.

About Tattershall and Coningsby, they have, for some years, been large cultivators of this crop.



POTATOES, at Coningsby.

Dr.	Mr. Faunt's Account.	Cr.	£. s. d.	£. s. d.
Rent for black sandy land,* per acre		By 1400 pecks of <i>ex nobles</i> ,† worth, upon an average, 2 <i>d.</i> per peck, or 2 <i>s.</i> per sack	3 0 0	11 13 4
Tithe	-		0 6 0	1 6 0
Ploughing	-		0 6 0	
Harrowing	-	240 pecks of refuse	0 2 6	
Manure (if land in good order) 10 loads, otherwise 20 loads	-			
Seed, 100 pecks	-		1 0 0	12 13 4
Cutting	-		1 5 0	9 19 6
Planting	-		0 2 0	
Hoeing and weeding	-	Clear gain per acre	0 7 6	2 13 10
Taking up	-		0 10 6	
Pying and carting half a mile	-		1 10 0	
			1 10 0	
			9 19 6	

Best eating potatoes are spotted lemons, old lemons, old rough reds, red nose kidneys, early reds, early manlys, and captain harts, worth, upon an average, 3*d.* a peck;—above 1000 pecks per acre, have been had of these, worth £. 12 10*s.*

Mr. Chatterton thinks about 900 pecks to an acre.—Average price 3½*d.* per peck; other observations he thinks right.

\* Broken land, rye stubble, or wheat stubble. Barley or oats is preferable, if free from twitch.

† Will be good eating upon good sandy land, and no where else.

*Woad.*

The culture of this plant has been carried to such perfection, on a very extensive scale, by J. Cartwright, Esq. at Brothertoft farm, near Boston, that it will be sufficient to explain his management. His father had been largely in the old system by moveable colonies, but as the trouble of that method of conducting the business was considerable, his son attempted, and successfully, to fix it to one spot. For this purpose it was necessary, first, to secure a tract of land sufficiently large for affording a certain number of acres annually in crop, for keeping the buildings and machinery in work, so that the business might go on with regularity. At Brothertoft he purchased such a tract; it will be proper to consider it under the articles of, 1. Soil; 2. Culture; 3. Manufacture; to render it saleable.

*Soil.*

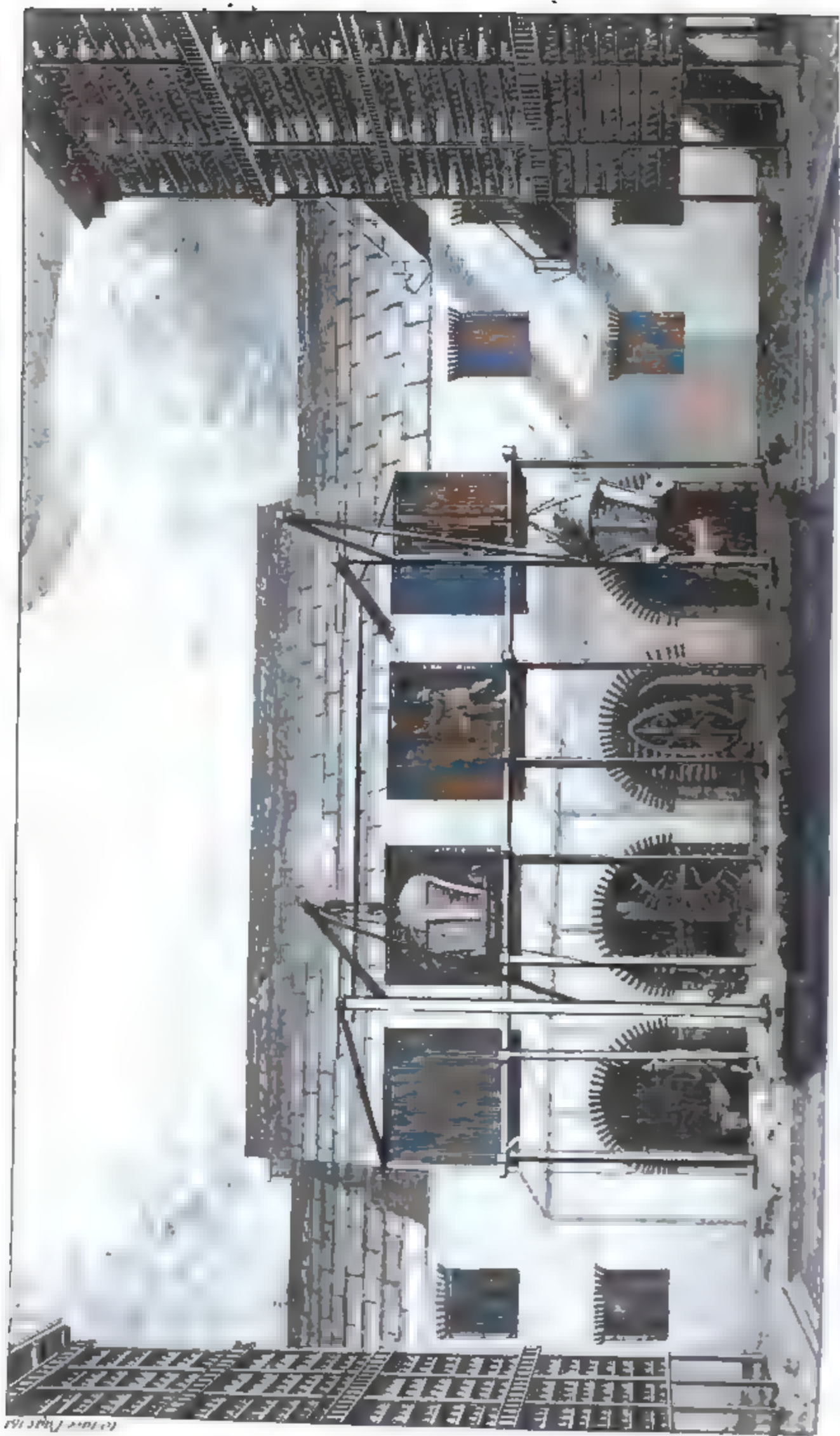
Woad being a tap-rooted plant, penetrating eight or nine inches, of a substantial size, it necessarily demands a deep soil; the best is a rich loam; a stiff clay is unfavourable. Here the saline principle of the soil is favourable to this plant, as well as to many others. Deep, fertile, putrid saline, an alluvion of the sea, the richness of which on the dead maritime levels is every where great. Experience has proved, that the plant thrives best on fresh grass land; accordingly it has long been the common practice for the undertakers of this culture to hire grass land, with a permission to break it up and sow woad for a certain number of years; here for four years; in the more upland situation, for two. Sometimes for three, in the second rate soils of this country.

*Culture.*

If the soil is dry enough to permit, the grass should be ploughed early in February; if not, later in that month.

Great attention should be paid to ploughing it as carefully as possible to the depth of about 5 inches, with 3 horses in a plough, followed in the furrow by a man with a spade, so that if the turf is not turned over very flat, and well joined, it may be laid completely so by hand. This attention is necessary to prevent the grass rising in the seams; then the land is harrowed often to raise a depth of mould sufficient for the drill to work. The seed is so put in (after a rolling about the middle of March, continuing till the middle of May, in portions, to vary the time of cropping), in equi-distant rows 8 or 9 inches asunder; if not loose enough, it is sown broad-cast, and the seed harrowed in. Quantity of seed per acre, 88 bushels in husk. And the clods raked off into the sides of the furrows, and then rolled again to leave it smooth and neat. In very old grass full of roots, the harrowing is repeated even to twelve or fifteen times; and in cases where the grass is rough and coarse with rushes, sedge, &c. it is necessary to pare and burn it, if the land belongs to the undertaker: and another reason for this practice is, that paring and burning destroys great numbers of the slug which produces the cock-chaffer, as well as the wire-worm, which abounds here in the lighter soils very much; there are also many slugs of a smaller size, of a bluish-brown, about an inch long. Being thus far done, the field must be gripped very carefully, for wherever water stands, the weed is entirely destroyed. Upon the first coming up of the plant, attention must be paid to the turnip-fly, and also to frosts, as the plants are sometimes destroyed by both, in which case it must be sown again immediately. It is not unusual to sow the greatest part of a crop twice or thrice. Begin to weed about old May-day; this is a business that is executed with much attention by men, women, and children, on their knees, using short spuds with one hand, and drawing away the weeds with the other. It is done by contract per acre, for weeding and cropping in one bargain.

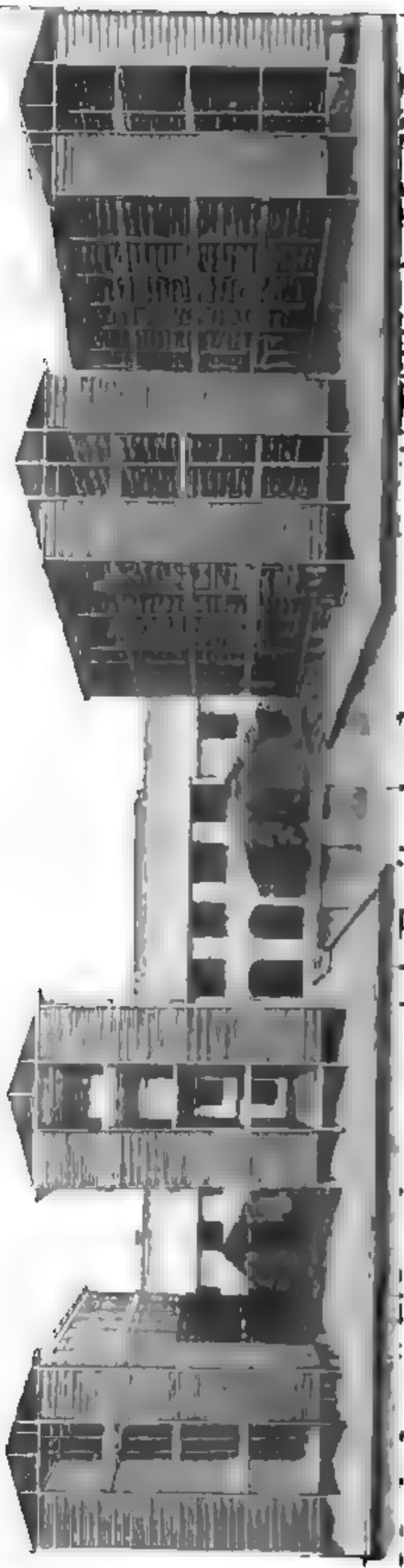






View to the West

FLYING EAGLE



to the right

Weed twice before the first cropping, and once after ; which second weeding is given immediately after cropping, which, for the first, commonly begins the first week in July here ; in the upland countries in the centre of the kingdom, three weeks sooner, owing to the land being warmer and forwarder ; the second crop is usually six weeks after the first. Generally every day's cropping is weeded before night. Cropping is performed by the same people : it is gathered by hand, grasping the leaves of the plants, and taking them off with a twist : on a rich soil and favourable season, it will be eight inches high ; in bad seasons shorter ; 60 or 70 dozen of baskets are spread in the field, ready to receive it, and for this consumption there is a plantation of osiers, for occasionally providing this article. The old method was, to take the crop from the field in very large carts, which were backed to the mill, and shot down for spreading under the grinding wheels. This was a slovenly operation, and rarely kept free from dirt. Mr. Cartwright has improved this part of the apparatus greatly, by substituting one-horse carts, the bodies of which lift from the axis and frame, and are discharged most conveniently, in the manner represented in the annexed plate ; being adapted to the contrivance of the mill, which varies considerably from the old ones, and is calculated to do the work of four or five mills on the old construction : it consists of 8 wheels for grinding, of 7 feet diameter on one side, and 6 on the other, being 3 feet wide, and formed of iron bars for crushing the woad. The power employed to work it is 8 horses, changed twice, sometimes more ; always two sets ; and when the work is heavy, three ; or twenty-four in all.

The body of the cart, when hoisted up by a tackle, rests on a frame work formed to receive it, upon which it is slid over the mill ; and the load discharged by the



bottoms of the cart being formed of folding doors, easily opened by a catch, so that the woad drops at once upon the floor under the sliding frames ; and around this central receptacle, the floor is pierced in a circle exactly above the grinding wheels, so that the plant is forked down in a few minutes. Much contrivance, and of great simplicity, is exerted for keeping the woad exactly in the path of the grinding wheel, which is effected by two sweeps annexed to the wheels, and going the circle with them, one on the outside and one within ; and when the work is sufficiently performed, these sweeps vary their motion ; and instead of keeping the woad as before, in the track of the wheels, plough it out by obliquely pushing it on the smooth stone floor (that part of which under the wheels is of granite, to resist the iron bruisers) free from the wheels. After this, the fresh woad is delivered to keep the mill going ; and the preceding parcel just finished, is thrown with shovels through four windows into two rooms on each side of the mill ; in these rooms it is left a short time for the juice to drain from it, till in a proper state to adhere in balls, when men place themselves, by means of proper apparatus, so as to form it into the balls, which are laid upon trays, on which they are conveyed to the drying ranges ; there they are placed on grates, so contrived as to form shelves, by sliding upon ledges in the ranges or drying-houses, as represented in the plate. They are on each side of galleries six feet wide, for the conveniency of loading and unloading. Here, in the course of about a week, it is dried sufficiently for preserving in stores over the rooms in which the balls are made, where it remains till all the operations of the field are at an end, and the labourers at liberty to manufacture it. There are 8 ranges, each containing 384 grates, below the lowest of which there are spaces for depositing casks either empty or filled with woad.

Such is the regular daily course of business during the whole cropping season.

The crop is regularly gathered twice, and in favourable seasons a third is either wholly or partially collected; this third makes an inferior woad, the first and second only going into that of the prime quality.

The land is left for winter in that state, well gripped, to keep it dry, ready for ploughing in the spring, which is done as soon as it is in proper state, which is rarely before the second week in March, when it is prepared, sown, and finished in the same manner as in the preceding year. A portion of every crop is however left, in order to produce seed, the stems of which rise the second year. Some growers gather it once for a crop; but as it is of an inferior quality, Mr. Cartwright has not practiced it. One acre of seed will produce enough to sow forty acres. The seed is less than that of the turnip, but the husk is large.

When sowing is very late, and the crop thin, it is a practice to thicken it by making holes in the vacancies with a triangular hoe, for children to drop seeds in; and this is done so late even as June.

The crop is thus sown in succession, as I before remarked, for 2, 3, or 4 years. The course of crops in which Mr. Cartwright proposed to introduce it, as a regularly returning crop, is this:

1. Woad.

2. Woad.

3. Woad, and on some of the best land; 4. Woad.

4. Oats.

5. Oats.

6. Cole.

7. Oats.

8. Grasses; white clover, rib, a small portion of trefoil, some of the best hay seeds that can be procured, parsley, and a proportion of ray grass.

sold to be delivered to the manufacturing towns where used.—Yorkshire and Lancashire the principal demand.

In regard to any idea that may be entertained of a crop which returns nothing to the soil, having an exhausting tendency, Mr. C. observes, that it is probably compensated by the thorough cleaning it receives. On these rich soils he conceives it to be a very beneficial culture, even in this respect. When these grass lands are broken up for corn, it has not been unusual for the crops to be so luxuriant as to injure themselves greatly. Any crop not fed on the ground will deduct something; and it is beneficial to put one in which shall do this more moderately than others, and at the same time clean the land; this must be an advantageous mode of breaking up.

It is, however, necessary to add one caution; it should not be imagined that it is an article, in which any man with skill, capital, and attention, can enter beneficially. The demand for this commodity is very limited; so that probably besides Mr. C. and three other growers, there is not 50 tons per annum raised in the kingdom. Should a few other persons be added, without these declining business, and the quantity in the market increased considerably, the inevitable consequence would be a fall of price; and the profit, made at present, become loss. Risk, and manufacturing, anxiety considered, nobody, without the expectation of a high profit, would enter into such a speculation; and I have doubts, whether on such a soil as will profitably produce woad, there are not other articles of cultivation, more common, less hazardous, and demanding vastly less attention, that would equal, perhaps exceed it in profit.

The annexed plates will give some idea of the erections at Brothertoft for this object. The contrivance of the whole has great merit; and Mr. Cartwright appears to have carried every branch of this cultivation to a de-

gree of perfection, to which no other person has probably attained ; the exertions he has made in this pursuit are capital and interesting.

*Hemp.*

At Swineshead this crop is much cultivated ; formerly on the same spots year after year ; but now they spread it over a farm accordingly as the soil suits, or the price actuates ; and on some lands that are foul, they sow it to clean. If the soil is weak they manure for it. Plough at Candlemas, again at Lady-day, and again the middle or the end of May ; when they sow 3 bushels of seed ; never weed, as it destroys all. At Old Lammas they pull up, leaving the strongest for seed : they used to take the female from the male, but that is left off. Bind in sheaves, leaving them in shocks of five for a week ; then clear the plants from dirt, and turn the sheaves, and set them together again. If they keep the crop till the spring, they bind it in larger bundles, and stack and thatch ; but reckoned preferable to set it at once ; for which purpose they tie it in *gleans* single. Any water will do for retting. If the weather is warm they leave it two weeks ; some longer ; and when, on examination, they find it retted enough, they load it on slades, and carry it for grassing to an eaten eddish ; which it improves much, great grass succeeding it ; nor does it taint, so as to make cattle refuse it. After a shower, turn it ; leave for three weeks, and turn it again. If the *femle* quits the *bun* easily, it is ready to *lift* ; then tied in bundles, and taken to a barn ; but must be quite dry. It is next broken and swingled, the price of which operation was 6d. a stone, but now 1s. Being now ready for the hecklers, it is saleable, and made up in plaited bundles. Sold at 5s. to 7s. 6d. per stone ; it has been known at 2s. 6d. and at

3s. 6d. within ten years. In 1795 and 1796, from 5s. to 7s.; 45 stone an average crop, 50 very good.

*Account for an Acre.*

	£.	s.	d.
Three ploughings and harrowing	6	15	0
Seed	0	15	0
Sowing	0	0	6
Pulling by the hundred (120) 1100, 1s. 6d.	0	16	6
Knocking and burning, 6d. a hundred	0	5	6
If tied five in one, it is 2d. per hundred; or, 6d. single tying at the root end, as well as			
at top	0	1	10
Watering, casting	0	5	6
Spreading, two women	0	2	6
Putting in	0	2	0
Sods and sodding	0	2	0
Taking off sods, and taking out	0	2	6
Carting	0	5	0
Twice turning	0	3	0
Gathering	0	3	0
Carting to barn	0	4	0
Breaking 45 stone	2	5	0
Carrying out; 1d. a stone	0	3	9
Rent	1	10	0
No tithe; poor rates	0	5	0
Drainage tax	0	2	0
	<hr/>		
		1	17 0
	<hr/>		
		8	9 7
	<hr/>		

# OF LINCOLNSHIRE.

159

Produce, 45 stones, at 6s.	£ 2 10 0
Puttings,—4 stone, at 2s. 6d.	0 10 0
	<hr/>
	14 0 0
Expences	8 9 7
	<hr/>
Profit	5 10 5
	<hr/>

This, if no manure.

The quality of the hemp is best from old hemp lands, being worth 2s. a stone more than from other lands.

At Haxey, sow it after wheat: plough before Christmas; some at Candlemas. Manure after the first ploughing; some turn it in, but not so good; a middling dressing, the shorter the better. Pigeon dung best; (added to dung) a quarter or quarter and half per acre. Like to have it best after wheat that follows clover. Plough again between Candlemas and Lady-day. Plough three or four times; sometimes roll and harrow much more in the spring. Sow about the middle of May, 10 pecks a chain acre. Weed out the largest weeds. Pull the fumble or male hemp about the 20th of August, leave the female till Michaelmas. Bind the fumble into sheaves or *beats*. Cart it to dykes, sod it; water it; lies in two or three weeks, according to weather. Running water very bad for it. Spread it on stubbles for three weeks or a month, till the *bast* cleats easy from the *hurd*; turn it once or twice; and, when dry, bind it in *beats*; carry home, and stack it, and work it; break and dressing it was 1s. a stone, now 1s. 4d. or 1s. 6d.; then ready for market to sell it to hecklers; 40 stone a good crop, 50 very rare;—30 or 35 an average. Many sell it by the acre:

in peace it was £. 3 or £. 3 10s. per acre ; last year £ 5. Price per stone from breaker 6s. 6d. or 7s. of late ; but was in peace 4s. 6d. or 5s. It is heckled, spun, and woven into cloth, but the farmer has nothing to do with this. As to the hemp left in the field, it is pulled about Michaelmas ; bind sheaves, and stooks on the land, and leave-it-ten days. Thrash it on a cloth in the field ; seed 12 to 16 strike an acre, worth 6s. on an average 5s. When thrashed, dyke it and sod it ; when laid five or six weeks, or even ten if frosty weather ; has known it the whole winter, and not a bit worse ; but must be trodden down once or twice a day, and the fumble the same. Do not spread it ; but set it up in little stooks to dry, then stack it to be ready to break and dress in the spring. Not so good, but it sells as well as the other. This is yellow hemp ; makes sacking and sail cloth ; but the other linen. Sow wheat after it generally, but sometimes barley. Get generally too much wheat ; but clover land gives a better standing crop, and healthier.

*Expence of an Acre.*

			£.	s.	d.
Five ploughings, 4s.	-	-	1	0	0
Harrowing, 1s. a time	-	-	0	5	0
Manuring, 3s. a load, 12 loads	-	-	1	16	0
Seed 2½ strike	-	-	0	15	0
Sowing included in ploughing					
Weeding	-	-	0	1	6
Pulling by women, fumbling	-	-	0	5	0
Carting, retting, sodding, unsodding, and taking out and treading.	-	-	0	5	0
Spreading and turning	-	-	0	1	6
Carried forward	-	-	4	9	0

# OF LINCOLNSHIRE.

161

			£.	s.	d.
Brought over	-		4	9	0
Gathering, binding, and leading home			0	2	6
Breaking 35 stone, at 1s. 6d.	-		2	12	6
Pulling the male hemp	-	-	0	5	0
Thrashing and beating	-	-	0	6	0
Dyking	-	-	0	7	6
Drying and stacking	-	-	0	3	0
Rent	-	-	1	10	0
Tithe	-	-	0	8	0
Parish charges	-	-	0	5	0
			<u>2</u>	<u>3</u>	<u>0</u>
			10	8	6

## Produce.

35 stone, at 7s.	-	-	12	15	0
16 strike of seed	-	-	4	16	0
			<u>17</u>	<u>1</u>	<u>0</u>
			10	8	6
Profit	-	-	<u>6</u>	<u>12</u>	<u>6</u>

At Butterwick, in the Isle, they generally manure for hemp ; and get 50 stone and upwards.

## Flax.

Much cultivated at Swineshead ; grass land fresh is preferred. Plough for it once, and harrow five times ; again with what they call an ox harrow, with a batten set an edge under it, and drawn over to level and pulverize ; then sow 2 bushels an acre, Baltic seed, at 10s. 6d. a bushel. Harrow two or three times. Pick the



broken sods, and lay in furrows. Very little weeding. Mr. Sumpter, of the Griffin, of this place, in 23 acres, has weeded only to the amount of eight men for one day. The beginning of August it is pulled by the day, and costs 12s. an acre. Tied in sheaves, the size of a man's thigh: next day taken to the dyke to be watered, and the better the flax, the longer it is in the water: from five days to fifteen; ten on an average. Cart it to grass eddish, where it lies till a shower comes, which is necessary; turn it twice. Gather and tie in *bottles*, 5 or 6 in one. Cart it to the barn or a stack. If *laid*, it will not do for seed; and the price of the seeded flax is 1s. a stone less. Breaking and swingling 2s. a stone. When it is ready for market, price 8s. a stone. Seldom any pullings, called *snufflings* of flax. This crop is thought to hurt the land. Both it and hemp are damaged by hedges or trees. It is common to sow turnips immediately after it; but Mr. Sumpter, on his own land, ploughs thrice, and sows wheat, getting fine crops.

*Account of an Acre.*

				£.	s.	d.
One ploughing	-	-		0	5	0
Harrowing	-	-	-	0	5	0
Ox-harrow and batten	-	-	-	0	2	6
Seed	-	-	-	1	1	0
Sowing	-	-	-	0	0	6
Harrowing	-	-	-	0	5	0
Picking	-	-	-	0	2	0
Weeding (if not sward ground), 10s.	-			0	5	0
Pulling	-	-	-	0	10	0
Dyking and spreading, 5s. a bushel	-			0	10	0
Carried forward	-			3	6	0

# OF LINCOLNSHIRE.

163

		£.	s.	d.
Brought over	-	3	6	0
Carting	-	0	5	0
Twice turning	-	0	6	0
Gathering	-	0	6	0
Carting to barn	-	0	6	0
Breaking 40 stone	-	4	0	0
Carrying out, and expences	-	0	6	8
Rent	-	4	4	0
		<hr/>		
		12	19	8
		<hr/>		

Produce, 40 stone, at 8s.	-	16	0	0
Turnips after	-	2	0	0
Deduct tillage, &c.	-	0	10	0
		<hr/>		
		1	10	0
		<hr/>		

		17	10	0
Expences	-	12	19	8
		<hr/>		

Profit	-	4	10	4
		<hr/>		

Most profit when seeded; for the crop is from 12 to 15 bushels, at 10s. 6d.; but in that case, something is to be deducted from the price of the crop, but not always, as it is the best flax that stands for seed. Getting the seed adds 20s. to the expence.

At Haxey in Axholm, they often sow it upon sward land; but more common on clover ley or wheat stubble Plough between Christmas and Candlemas; three or four harrowings, and rolling fine; if a fine mould, harrow in the seed on this one earth; if not, skim it with plough very thin to make it fine. Sow 2 strike an acre;

plough it ; skim it half in, and half on top, both ways ; as opinion leads. Weed it carefully on their knees. Pull it the beginning of August for white line ;—sometimes leave it for seed, especially if a slender crop. Bind and dyke it : leave it in about ten days to a fortnight ; if very warm, eight days ; much treading twice a day in the pit. Grass it on barley stubble, or on eddish, for a month, and to six weeks ; turn it once or twice. *Tuffle* it ; that is making it in a loose sheaf, open at bottom. When dry, bind it in bottles, two or three in one. Barn or stack it : after harvest, and in winter, break at 2s. a stone. Ready for sale to the heckler, at 8s. 9s. 10s. 6d. a stone ; some 11s. last year ; average 8s. Harrow off the rubbish, and plough twice for wheat.

*Account of an Acre.*

			£.	s.	d.
One ploughing	-		0	4	0
Harrowing and rolling	-		0	4	0
Seed and sowing	-	-	0	18	0
Skimming	-	-	0	4	0
Weeding	-	-	0	13	0
Pulling	-	-	0	7	6
Leading and retting, &c.	-		0	10	6
Grassing, &c.	-		0	5	0
Leading, &c.	-	-	0	3	0
Breaking 30 stone, at 2s.	-		3	0	0
Rent, hired for it particularly			3	0	0
Tithe	-	-	0	8	0
			<hr/>		
			9	17	0
			<hr/>		
Produce, 30 stone, at 8s.	-		12	0	0
Expences	-		9	17	0
			<hr/>		
Profit	-		2	3	0

If on the sward, the rent will be 40s. more ; and the crop will be from 40 to 60 stone ; about 50 good.

At Butterwick, in the Isle, their best wheat follows flax : the crops of the latter 50 stone.

At Garthorpe, on fresh land, flax produces 50 stone : they sell it, as it stands, for £ 6. or £ 7. an acre.

### *Lucerne.*

This plant has been cultivated on  $7\frac{1}{2}$  acres, by Mr. Cartwright at Brothertoft ; his first piece was sown about five years ago, drilled at 18 inches. The land was not prepared by any particular course of crops, but a deep ploughing. It has yielded large crops for soiling horses ; saddle horses have no corn with it ; others, on occasion, have corn ; and a large stock of hogs supported on it, without other food. It is cut thrice a year ;—cleaned by horse-hoeing : which should be done directly after cutting ; but Mr. C. has so much other business, that he thinks it will answer better broadcast, and intends sowing the intervals. In 1796, he drilled clover between the rows, which, with the lucerne, gave that year a full crop ; the lucerne as strong as the clover. This year the first cutting of 5 acres, 3 roods, fed 36 horses and 2 bullocks five weeks ; but cut late, from the backwardness of the spring. If the horses are reckoned at 2s. 6d. a week, and the bullocks at 1s. 6d. this amounts to £ 4. an acre ; and it will be cut twice more ; though the last cutting will not be considerable : however, this is a very considerable produce, from an article on which the expence is not high.

I saw some drilled at Mr. Dalton's, at Knaith ; the rows 2 feet, amongst barley : it was very clean, and in good order.

Mr. Webster, at Bankside, has it drilled; and very luxuriant the first year, on a warp bank.

*Sainfoin.*

The first sainfoin I met with in the county was at Coldharbour, in passing from Folkingham to Grantham; and I found that it had been tried by Lord Brownlow's father at Belton. His Lordship shewed me a field, broken up twenty-eight years ago, on a limestone rock, upon which a singular circumstance occurred: it was a few years ago re-sown with good seed, but it failed: the seed vegetated, but died away as if it was starved. I cannot account for this, as there are well authenticated experiments that prove its success, after a shorter interval.

There is a very moderate quantity of this grass at Leadenham, where it succeeds well; and has been cultivated these twenty years, and perhaps more. Mr. Betsal gave the hay to his cows; but was forced to leave it off, because of the bad taste it gave the butter.

The reddish sands on the heath at Blankney yield vast crops of this grass, and last well, ten, twelve, or fourteen years; though on the Wolds it endures not more than eight or nine. These red sands are excellent also for turnips and barley.

North of Lincoln, to, and about Hackthorn, much of this grass. Mr. Cracraft, from 16 acres, in 1797, sown among barley in 1795, had 31 loads; the abundance enlarged by the rainy season. Prepare for this crop, by getting in fine order for turnips; and well dunged, sow it with barley, 6 bushels to four per acre; lasts ten to fifteen years; but some say less than ten. When they break it up, they fallow for turnips, or wheat, and get as good as after any thing; but turnips they reckon better manage-

ment. The hay good for every thing ; horses, cattle, and sheep.

Mr. Harrison, in the new inclosed lordship of Kirton, has a beautiful piece of 25 acres, on which was mown, in 1797, the second year,  $1\frac{1}{2}$  load an acre. There is a scattering of it all over that country on the heath inclosures ; but much less than there ought to be. He summer-fallowed the land, and sowed it 4 bushels an acre ; no mixture ever with it here, where it has been known, in some measure, to my knowledge, thirty years.

About Normanby, Burton, &c. they sow a good deal on stoney lands ; it lasts near twenty years, and in a vigorous state ; but in common not more than sixteen. Always mow it for hay, but never manure it.

At Alkborough it lasts twelve or fourteen years ; yields vast crops of hay.

At Barton, some that has answered very well, has yielded 3 tons an acre : feed the aftergrass with lambs.

Lord Yarborough is clear that there is now much less sainfoin, about Brocklesby, than there was thirty-five years ago ; now there is none in the immediate neighbourhood ; but a little near Louth. Mr. Ancel at Ormsby had it to produce hay for his rabbits.

This grass is cultivated to a pretty considerable amount in the neighbourhood of Louth, to the south west. Mr. Clough, of Gayton, has 30 acres of it ; and some farmers have as much as from 100 to 150, particularly Mr. Grant of Whitgul ; also at Hallington, and Stannigate. Upon its giving signs of wearing out, Mr. Clough sowed 30 acres of seed adjoining, to feed the whole with sheep ; and 60 acres carried 200 sheep the summer through, near  $3\frac{1}{2}$  per acre ; but only 2 to be reckoned to the account of the sainfoin : it had been sown only six years, and they say it generally wears out at six, or seven, or eight years. They are so distressed in the spring, when turnips fail,

that I suspect they now and then feed it at that season ; if so, no wonder it wears out. When they break it up they sow oats ; a very poor crop ; 2. oats ; 3. turnips ; 4. oats ; and white clover and hay seeds, left seven or eight years. The land will not be fit for sainfoin again in less than fifteen or sixteen years. They do not pare and burn sainfoin, though much in the habit of that husbandry for breaking up other seeds, which is singular. The crops amount to two loads an acre of hay, in a good season. All the country is on chalk.

About Spilsby, Dalby, &c. this grass lasts only eight years, yet they never feed it with sheep after Candlemas : sow 5 bushels ; Mr. Bourne, 9lb. of trefoil with it. Of all other things that can be sowed with it, ray grass is the worst. Produce  $1\frac{1}{2}$  load per acre.

Mr. Parkinson, of Asgarby, disapproves of sainfoin, because it makes land poor ; but on very barren heath, or Wold land, he thinks it is very useful ; as it makes a soil produce a crop of hay, which naturally would only feed rabbits by *shar* grass.

Twenty acres near Ranby gave 63 loads the second year. The late Mr. Codd had much of this excellent grass. This hay, in the warren at Thoresway, valued only at 25s. a load.

Sainfoin is cultivated about Grimsthorpe, on the crotch land that is shallow ; for this crop will grow where hardly any thing else will, and produce  $1\frac{1}{2}$  load an acre, on land that has given miserable barley. It lasts, on some land, five or six years, and even to ten. They do not pare or burn it ; but plough it for oats or barley. Mr. Parker had 10 acres, and never had better crops than after it, in the course of turnips, barley, wheat ; and has never, for eight years, had less than 5 quarters of barley, and about 4 of wheat : a sure proof that no evil resulted from sainfoin, though there is a notion that it impoverishes,

which Mr. Parker thinks idle ; not to speak of the manure which arises from great crops of hay.

*Onions.*

This is an article which I found was not uncommon at Haxey in Axholm. I saw some fields, the crops of which were good. The crop is valuable ; and rises even to £ 50. an acre. They pay £ 5. an acre for liberty to sow them, the farmer finding one ploughing.

Many were cultivated near Stockworth 4 or 5 years ago.

*Cow-grass.*

Mr. Anceel, at Ormsby, got good crops on poor rabbit-land.

Much approved by Mr. Parkinson. See the article *Seeds*. Mr. Ellison approves highly of this grass ; he has had crops of it which would have fed ten or twelve hogs an acre for several weeks, and has mown three load of hay an acre from 20 acres ; and will the second year give two loads an acre ; whereas if it had been common clover, it would give hardly any thing. Upon the land that yielded three loads, the tenants, for ten years past, could get no crops of common clover worth mowing. It is cultivated for seed at Scorthan, within a mile of Sudbrook.

*Swedish Turnip.*

Mr. Graburn has tried it, and seen it in several places on the Wolds, but none that ever answered, yet sown early. At Roxby, Mr. Laurence had a very good crop, and stood well when the common turnips were destroyed.

Mr. George Bourne of Haugh tried them, and has a few now, because they stand the frost ; and Mr. Parkinson the same.

Mr. Walker of Woolsthorpe has a very fine crop sown



broad-cast in June, after one crop of oats, on a turf about 10 years old.

*Parsley.*

This plant is cultivated as an artificial grass by Mr. Stephenson of Swineshead, mixed with white clover; 14 lb. an acre of the latter, and 2 lb. of the former. It lies three years; and the first supports from 6 to 10 sheep an acre. The second, it is manured; and keeps also from 6 to 10 an acre; the third, it carries from 7 to 11 an acre. The soil is the fertile loam of Holland Fen.

About Folkingham, amongst the good farmers, they have sown this plant with clover, 2 lb. an acre, at 8d. a pound; and every body that has tried, approves it for sheep, being healthy for them.

Mr. Hesselden sows 2 lb. of parsley in his seeds; the sheep are so fond of it, that they eat it down so close as to kill the plant.

The Rev. Mr. Allington of Swinhop has sown it four years; and Mr. Whalesby, his tenant, on this farm, sowed it eight or ten years before, on the same farm. He has a great opinion of it, and means to have more in future; has not sown more than 2 lb. an acre, but designs more in future, unless the price prevents him, it has increased much in three years.

This plant is uncommon in cultivation in any part of the kingdom; but from these experiments, it seems to merit more attention than it has received, and probably would be found a valuable article upon any sheep-farm.

*Cabbages,*

Have been largely cultivated by Mr. Cartwright; the management is to plough before Christmas, if the weather permits; in March again, and a third in April; clean it

well. The middle of May lay on the dung, 12 loads an acre; not much at once on any crop, as laying it on at twice, better than at once; ploughed into 4 feet ridges, for planting. The seed is sown early in February, upon a very rich spot: never prick out; plant the middle of May according to weather; but will not cabbage well if run into June. If to be eaten before Christmas, the beginning of May a better time. When the weeds grow, plough with a common plough from the rows, leaving the plants on a space of 8 inches, which hand-hoed well down, and clean mould drawn up to cabbages, at 3s. 6d. or 4s. an acre. When weeds dead, return the furrow back. In about a fortnight, with expanding horse hoe, or double mould-board, scour out the furrows, and drive the earth nearer the plants. If they permit, repeat this. Left thus till harvest, when weeded and picked of caterpillars; left till used; cut with a sharp tool, and carted home, or to sheep in pastures; and this an excellent use a little before lambing; but not before, for they make the lambs grow too large. Has also fattened oxen with them. Tried for horses, but did not continue long enough to know if they would do well. In the spring of 1796, sheep and beasts were kept on them in April, but refused, and both would have starved; this an exception, and to what owing, not to be ascertained, for it never happened before. Is of opinion, that an acre of cabbages, if good, is equal to four acres of rape, that are worth 50s. an acre; 5000 upon an acre. Planting 7s.; expence, half the manure reckoned, about £ 5. an acre. Mr. Cartwright has had up to 46 acres of them in one year.

About Folkingham, upon almost every farm, they have been cultivated on the scale of a few acres, and are very much approved, especially in frosty weather, when turnips are not to be got at. Some beasts have been fattened on them, and have answered exceedingly well.

Mr. Goulton has every year a small piece of the Scotch sort for his ewes and lambs, and finds them most excellent for that stock.

Mr. Linton of Freiston cultivates cabbages with great success. He has usually .5 acres ; sows the Scotch drum-head, the latter end of February or beginning of March ; raises his own ; sows very thin upon land ploughed three times, fine, and well manured, at 18 tons an acre ; does not prick out. Plants land that is autumnal ploughed, and upon that part which is to be planted, first manured in autumn, before ploughing, 15 tons an acre ; the rest after the second ploughing in spring ; plough four times ; plant 2 feet 8 inches in squares, on flat, for cross horse-hoeing. Horse-hoe thrice each way ; the first and second without the mould board, the rest with it. In regard to the consumption, the winter of 1795, he fed 8 bullocks with them, with a small quantity of hay, given in cribs, in a well littered yard ; they were, at putting to cabbages, worth £ 16. each, on the 16th of December, and about the end of February, they were sold in Smithfield for £ 25. each. Their consumption of hay was not more than one-third of their food. Mr. Copeland, a skilful grazier, saw the beasts, and said he never saw any so much improved in an equal time. They ate three acres, which yielded £ 48. Smithfield charges, about 14s. each, leaves £ 44. 8s. or £ 14. 16s. per acre. Mr. Linton remarks, that it must not be expected by those who cultivate cabbage, that such products are to be gained in common, for a good market, and a rise, had their influence in this case. Mr. Linton has turnip for his lambs, and when frosts come, cabbages are of excellent use ; for turnips are not to be got ; and if got, frozen. In the spring, when turnips fail, folds them off in small pens, as cabbages last three weeks longer than turnips. But the use is incomparable for ewes, rearing lambs with greater success than any

other food. From various observations, is of opinion that three acres of cabbages are fully equal to five of turnips.

Mr. Ellison, two years ago, tried an acre of cabbages ; got a good crop ; gave them to beasts, upon eddish when done ; they were foddered twice a day at same time upon hay, and never had beasts do better ; as well as upon cake.

Mr. Walker of Woolsthorpe cultivated for seven years, and got fine crops ; but he thinks turnips as good food, with which crop his soil agrees remarkably ; but for stalling beasts, has found cabbages preferable.

Cabbages are cultivated about Grimsthorpe, especially by tup-men, who find it necessary, in order to feed their rams ; they produce larger crops, and stand the winter better than turnips. It is a great object to keep their rams in high order, and this they find the cheapest and best method ; must give corn, if they had none ; and Mr. Parker thinks they do better on them than they would on corn.

Notwithstanding the abovementioned respectable trials, this appears to be a crop that merits much more attention upon the rich soils of this county, than it has met with. In a district more abounding with sheep than any other in England, such a crop would be peculiarly valuable ; and I cannot but recommend it to the attention of the spirited flock-masters, who have made such great exertions in increasing and improving the breed of that animal.

#### *Carrots.*

Mr. Hutton, at Burton, near Gainsborough, has sown this crop amongst a new plantation, apparently with good success ; the soil, sand. As he fattens beasts with oil-cake, it is designed for that use, to the saving of cake.

Three years ago Mr. Ellison tried an acre ; a very good crop ; which he gave to the draft-horses ; and the effect was remarkably favourable ; they did better without corn, than they had done before with it. He also tried beasts with them, and thinks from that trial that no food is better.

Mr. Walker of Woolsthorpe has had carrots several years on his rich red sands; his crops have been large, and he has a very high opinion of them for all sorts of stock.

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## CHAPTER VIII.

### GRASS.

#### *Rich grazing Lands.*

THESE are the glory of Lincolnshire, and demand a singular attention; the soil is a rich loamy clay, some very stiff, but of uncommon fertility, as may be seen by various instances.

Some of the grazing lands in Long Sutton, that were common, will carry five or six sheep an acre, and four bullocks to ten acres. Mr. Scrope there has four acres, which carry 45 sheep in summer, and must be *hobb'd* often to keep it down.

On the grass lands in Deeping Fen, improved by paring and burning, Mr. Graves keeps five sheep an acre from Lady-day to Michaelmas, and one and a half in winter; and a bullock of 60 stone to two acres besides in summer.

As a grazier, few men have been in a more extensive business, or practiced it with more success, than T. Fydell, Esq. M. P. at Boston. I was therefore particularly solicitous to procure information from a gentleman perfectly competent to give it. Several unfortunate circumstances prevented the interview I hoped for, but by letter afterwards, I received the following account of 20 acres of rich land near Boston, for the year 1796, and a more satisfactory one cannot be wished.

३

To 18 Beasts, at £12. each  
To 80 Sheep, at 46s.

*To Expenses, viz.*

Tithe	-	-	1	10	0
Dykereeve	-	-	3	0	0
Rates	-	-	10	0	0
Shepherding	-	-	3	0	0
Expences	-	-	.5	0	0

## Loss, supposed one sheep

Interest one year	-	-	-
One year's rent	-	-	-

## Hire of a close for the winter for 35 sheep

Profit

**Contra Cr.**

By 18 Beast, £19. 5s.  
By 80 Sheep, at 55s.  
By 52 tod of Wool, at

£.	s.	d.
216	0	0
184	0	0
<hr/>		
400	0	0

$$\begin{array}{r} 22 \text{ } 10 \text{ } 0 \\ 2 \text{ } 6 \text{ } 0 \\ \hline \end{array}$$

424 16 0

2140

009

506000

17 10 0

523 10 0

8740

610 14 0

£.	s.	d.	
346	10	0	
220	0	0	
44	4	0	
<hr/>			
610	14	0	

The difference between the buying and selling price, loss deducted, £ 208. 8s. is the *produce* of the land, or £ 10. 8s. per acre, which is very great indeed, and shews that this land would let at £ 5. 4s. an acre, *supposing this year to be an average one*. This difference of rent would deduct £ 44. from the profit of £ 87. and leave £ 43.; which, with £ 21. charged, makes £ 64. interest on the year's advance of £ 546. or  $11\frac{1}{2}$  per cent. As £ 3. an acre is the highest rent I have heard of in Lincolnshire, and much higher than common, even for the best lands, this account seems to confirm the idea I have entertained, that the rich grazing lands of this county are lower rented than such, or nearly such, lands yield in other parts of the kingdom.

Some further circumstances, for which I am indebted to the same gentleman, are,

That the average weight of the beasts is 70 stone, being of the York or Lincoln breed; the sheep all Lincolns. The former are bought in April or May, and all gone by the 11th December; the sheep are bought in May; they are clipped twice, and sold fat in April or May following; that there is little difference in seasons; except that after a bad winter, the sheep are not ready for market so soon by a month, as they are after good winters. The loss in weight in driving to Smithfield, very little; the expence, beasts 15s. 9d.; sheep 1s. 9½d. each.

Mr. Fydell held for several years a piece of land in Skirbeck parish, which measured 21 acres, and kept, *com. annis*, from Lady-day to Michaelmas, 19 heavy beasts, and 100 sheep; and wintered 50 sheep.

He now holds a pasture adjoining his garden at Boston of eight acres, which keeps in summer 10 oxen and 40 sheep; and winters thirty sheep.

The finest grazing lands are at Boston, Alderchurch, Fosdyke, Sutterton, Kirton, Frampton, Wyberton, Skirwick; these will carry in summer a bullock to an acre

and half, besides 4 sheep an acre ; and 2 sheep an acre in winter.

Rev. Mr. Berridge of Alderchurch, has near his house 40 acres of the rich grass, upon which the stock is, upon an average,

300 sheep,

16 fatting bullocks,

3 cows,

4 horses ;

and carries through the winter three sheep an acre. This land is valued at 40s. an acre. It is a vast stock. He favoured me with these particulars in the presence of a dozen neighbours, and called in his manager to confirm it ; it wanted therefore no after-corrections.

In the grazing lands at Swineshead, a beast an acre, of 40 to 70 stone, and two or three sheep ; also two sheep an acre in winter.

Mr. Tindal at Ewerby, which is on high land compared with Holland Fen, stocks a bullock to two and a half acres, and three sheep per acre, in summer ; and two sheep an acre in winter.

In the lordships of Horbling, Billingborough, Berthorp, Sempringham, Pointon, Dowsby, Dunsby, and Hackonby, there are extensive tracts of rich grazing land applied to fatting bullocks and sheep, carrying a bullock to two acres, and three sheep per acre, in summer ; and two sheep an acre in winter ; which lands are generally rented at 30s. per acre.

Mr. Elkington of Howel keeps one bullock and nine sheep to three acres, and in winter two sheep an acre.

Hanworth, north of Lincoln, is chiefly grass, which is fed by cows, calves, and young cattle.

On the Lawn at Norton Place, which is heath land, two couples per acre in summer ; but the soil not adapted to permanent grass without great exertion.

There is a tract of pasture land, which is of consider-



able extent north and south, but very narrow east and west, which lies in the vale between the Heath and the Wolds. I viewed it from Norton-Place in going to Owersby, which is in it: the quality is good, but of the second rate. At Kingerby, a namesake of mine has a farm of it horridly over-run with thistles; were he a tenant, I think the addition of 2s. 6d. an acre to his rent, would awaken him a little.

The grass land close to Gainsborough lets at 4 and £ 5. an acre. The marsh grass on the Trent at Knaith, &c. 20s. to 30s. and produces one and a half, or two tons of hay an acre. The marshes on the river are stocked from the 12th April to 12th May; this of late has however been omitted, as they found the grass hurt by it. Clear the hay by Lammas, one, to one and a half ton an acre. Then turn in milch cows, and afterwards other stock, till November. Rent 20s.; but measure short.

At Garthorpe in marsh land, some rich grazing lands, which will carry a good bullock an acre, but no sheep fed. This land is now let to break up, at £3. 15s. an acre, for 14 years.

From Normanby to Alkborough all farmers consider grass only as a means of manuring arable, and keep it in bad condition; I met the remark here, and therefore note it; but it is a common observation through half the kingdom.

Mr. Hesselden, at Barton, has 4 acres near the town; levelled and manured it after the allotment, and this year it feeds 4 cows, 3 of them joisted at 3s. a week: a produce of 12 guineas.

At Immingham and Stallenborough, there are some marsh lands that will carry 9 bullocks of 80 stone upon 12 acres, and 12 sheep, and 2 sheep per acre in winter; some has only 1. But the same lordships have clay pastures that will not do any thing like this.

At Thornton College, Mr. Uppleby has a few closes of

extraordinarily fine grazing land, which will carry the largest bullocks, and is worth 50s. an acre rent, he thinks.

The marsh on the coast at Grainthorp, Saltfleetby, and Theddlethorpe, &c. is very good; it will keep 3 sheep an acre, and an ox to 3 acres; and 1½ sheep to an acre in winter.

The hilly Wold, good pastures on marl and chalk; at Gayton, near Louth, will carry 3 ewes and their lambs per acre, and a sprinkling of young cattle, &c. besides. Some only 2 ewes and lambs, besides cattle: such land as is worth 15s. to 20s. an acre.

In the marshes that are in the vicinity of Saltfleet and Sutton, there is some distinction, which it will be proper to note by parishes. In Northcots the quality is rather inferior, being chiefly for breeding. Marsh Chapel better; but still weak, and for breeding also. In Grainthorpe, a great deal very good grazing land. Conisholm low, swampy, and but little good. Skidbrook, a great deal very good. South Somercots the same; but 1000 acres of *ings*, or common meadow. The three Saltfleetby's, 5000 acres; and a great deal very strong and good for *feeding* beasts; some of the late Mr. Chaplin's marshes here sold so high as £ 77. the statute acre. In general, the measure short from Saltfleet to Sutton, there statute. In the Theddlethorpes, much very good; but some low, and not well drained. Marblethorpe very good. Sutton remarkably good and strong feeding land. Great Carleton middle marsh, arable, inclosed about twenty years ago; good corn land, Gayton like it; but longer inclosed. Maltby and Strubby, open field arable, in the clays. Hannah and Markby the same. Anderly inclosed lately. Cockerington and Grimoldby arable, inclosed about twenty years ago. Manby open arable. In these marsh parishes the rich grazing ground of the first quality lets at about 40s. an acre, and the rest about

30s. Such as will not *feed*, but only breed, at 20s. to 25s. and this distinction of *feeding* and breeding is here also expressed, by saying, that one sort of marsh will *feed* sheep ; but the other keep them in *holding* order,—will make them hold the flesh they have got, but not fatten profitably. If the best of these lands are compared with the grazing district of Boston, and its vicinity, it is remarked to me, that these are more *naturally* good, and much better watered ; they have, at all times, plenty of fresh water here, which is a great object ; but for artificial fertility, locality to fairs and markets, &c. the Boston lands much superior. The measure at Boston, &c. is here said to be more than an acre ; here less, not more than 3 roods ; and the *ing* land still less. On 10 acres at Skidbrook, 8 beasts, and 16 sheep have been summered, and the sheep wintered also. And, in general, the marsh that lets from 30s. to 40s. will carry a beast to 2 acres, and 2 sheep an acre ; but perhaps, more generally, 1½ sheep.

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ought to be, at least £ 10. per cent. after a proper deduction for losses. Either, therefore, the land carries more stock, or it is too high rented. Grazing is accounted a profitable profession :—but when it is considered, that this £ 26. capital would stock 5 acres of good arable land, and that they could not be reckoned to pay a less profit than from 12s. to 15s. an acre from £ 3. to £ 4. 5s. it will appear that the plough is much more beneficial than such grazing, *thus calculated*.

Sixty or seventy years ago, Mr. Neve's grandfather rented such marsh as would now let at 40s. for 16s. per acre; and rarely went to pay to an old lady his rent, without the salutation, *I hope you are not coming to give up your land?* The advance of times is seen in another circumstance: Mr. Welflet, lately dead, stocked a particular close at Saltfleetby with cows, bought in at 19s. 6d. a head, and shearling wethers at 20s. the sheep costing more than the cows. He was above eighty. A great change has also taken place in the inhabitancy: within forty years, 4 four-wheeled carriages were kept by graziers in Theddlethorpe, now deserted, few living any where in the marshes, without farms elsewhere; by degrees the Wold farmers have gradually been getting the whole, except some few small occupations. These facts are remarkable, and they tend to contradict materially an idea I have met with, common enough in the county, that this tract of marsh, which extends from the Humber to Long Sutton and Tidd, has not been much improved in rent except by inclosing.—We find, on the contrary, that it has been prodigiously improved; without doubt by the generally operating causes of national prosperity. Wealth regularly increasing has raised the prices of products, and in this county very greatly to its honour; a subject that ought to be dwelt on longer here, but it is treated more expressly in another chapter, the poor

have come in for a large, and perhaps an ample share; for the price of labour throughout will surprise those who have been accustomed only to the more southerly counties. Under such a growing system of improvement, I must own I feel no regret at the loss of the carriages,—the people have changed place, but they are better employed.

Mr. Bourne's best marsh is at Addlethorpe, worth 40s. an acre; it will carry, per acre 5 sheep, and a bullock to 1½, besides a horse to 10 acres; and in winter something more than 2 fat sheep an acre.

There is marsh land (Mr. Calthorp's at Gosberton), which carries 7 sheep an acre, and a bullock also, this must have been large measure; and 300 tod of wool have been clipped from 90 acres. In such a case the land could probably have been stocked with nothing but sheep, and must have carried about 10 or 11 per acre. It may appear whimsical, that one must go to the Wolds for marsh intelligence; but so it is; the principal Wold farmers have marsh land; and the facts can be got only where the occupiers are to be found.

In the marsh parishes of Burgh, Croft, Wainfleet, Winthorpe, Addlethorpe, much land at 40s. an acre, which will carry 5 sheep an acre, and a beast to 2 acres, and 2 sheep an acre in winter. Mr. Kershaw of Driby, and Mr. Bourne of Haugh, agree in the following Marsh account, for land there at 35s.

<i>Produce.</i>			<i>£.</i>	<i>s.</i>	<i>d.</i>
2 sheep at 10s. the summer	-		1	0	0
2 ditto in winter	-		1	0	0
Half the profit on an ox	,	-	1	13	4
			<hr/>		
			3	13	4

<i>Expences.</i>			<i>£.</i>	<i>s.</i>	<i>d.</i>
Rent	-	-	1	15	0
Tithe	-	-	0	3	0
Rates and dykereeve	-		0	8	0
Shepherding	-		0	1	0
Cutting thistles and dressing			0	2	0
Ditches, folds, &c.	-		0	0	6
Interest of capital			}		
Bullock half	-	6 0 0			
2 sheep	-	3 0 0			
Rent	-	2 0 0			
			<hr/>		
			11	0	0
Going to look at stock	-		0	0	6
			<hr/>		
			3	1	0
Produce	-				3 13 4
Expences	-				<u>3 1 0</u>
Profit	-				<u>0 12 4</u>

Gross interest rather better than £ 10. per cent.

Mr. Parkinson of Reevesby observes, that the rich marshes were better managed, and in better order twenty years ago than they are at present; the Wold farmers had not then got such possession of them, and they were in the hands of resident graziers, who attended much more to hobbing, which kept them fine, for nothing hurts marsh land so much as letting it run coarse, from permitting the grass to get a head.

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			£.	s.	d.
	Brought over	-	42	3	11
	Stock as above	-	165	10	0
			207	13	11
	Incidents	-	5	0	0
			212	13	11
	Profit	- -	15	16	1
			228	10	0
<i>Produce.</i>					
7 Beasts, at £2. 10s.	-	-	121	10	0
30 sheep, at 54s.	-	-	81	0	0
60 fleeces, at 8s.	-	-	24	0	0
A horse 12 weeks	-	-	2	0	0
			228	10	0

Per acre £1. 11s. 6d. profit.

Produce £6. 6s. per acre.

It is supposed that the profit upon this first class of land is greater than upon the rest ; and that the third sort yields very little profit by grazing, and would pay much better in tillage. There are many graziers here who have no other land than what is upon these flats ; and some who are supposed to have made by their business, enough to have realized a comfortable subsistence.

In regard to the progress of rent here, it has not advanced nearly in such a proportion as in other districts, having always been naturally in a productive state, and others advanced by artificial means, to be of much more than their former value.

The marshes near the sea, from Wrangle to Sutton, are part divided from the high country by the fens, and part by clay parishes, called middle marshes, which

marsh is near the sea, a rich loam, on a silt or clay bottom ; the part nearer the villages a very rich soapy clay, best adapted for feeding sheep and beasts ; with a smaller share of *ings* for hay ; nearer the middle marshes, cold wet clay.

At Mr. Thomas Taunard's.—The rich grazing lands are in the parishes of Kirton, Frampton, Wiberton, Boston, Skirbeck, Fishtoft, Freiston, Fosdyke, Sutterton, Alderchurch, Wigtoft, Swineshead, Bicker, Donnington, and Quadring. The measure of land in these parishes is larger than the statute, generally 5 roods ; but particularly the copyhold, of which there is much. At Wiberton there is some in the occupation of Mr. Westmoreland at 57s. an acre : it will carry a bullock to 2 acres, and 6 sheep an acre ; and in winter 2½ sheep an acre. Mr. York of that place has sold land at £ 60. a chain acre ; but this is not high.

The average of Wyberton parish taken by commissioners, upon oath, by act of Parliament, for Frampton, and all the other parishes about Boston, viz.

	<i>Acr.</i>	
Old inclosures	2045	average . 27s. per acre.
Fen -	905	ditto 23s. ditto.
In all -	<u>3030</u>	Rent £. 3869 per year.

Grazing account of certain fields in the occupation of Mr. Loft of Marsh Chapel.

	£.	s.	d.
Rent	-	-	1 15 0
Tithe	-	-	0 2 0
Rates	-	-	0 3 0
Shepherding	-	-	0 1 0
Interest of capital	-	-	0 12 0
			<u>2 13 0</u>

It carries a bullock to 2 acres, and 3 sheep per acre.

<i>Produce.</i>		
$\frac{1}{2}$ a bullock	-	-
$1\frac{1}{2}$ sheep	-	-
		<hr/>
		3 0 0
Expences	-	-
		<hr/>
Profit	-	-
		<hr/>
		0 7 0
		<hr/>
Of better land,		
Rent	-	-
Sundries	-	-
Interest of capital	-	-
		<hr/>
		3 16 0
		<hr/>
It carries a bullock, and 3 sheep an acre.		
A bullock	-	-
3 sheep	-	-
		<hr/>
		6 0 0
Expences	-	-
		<hr/>
Profit	-	-
		<hr/>
		2 4 0
		<hr/>

But it is a very few fields will yield any thing like this: he has but one close; and here are some expences omitted.

From Tealby on the edge of the Wolds to Wragby, there is a constant series of grass, with hardly any tillage; it is under sheep, and some breeding cattle, with mowing; and lets about 20s.

Mr. Tennison of Lincoln, has 13 acres of marsh at Grimsby, that summer-feeds 14 bullocks; and carries 35 sheep the year through.

From Sempringham down to Deeping, a line 2 or 3 miles broad of rich grazing land, made in a long course of time, by what has been brought out of the adjoining fens, worth, one with another, 20s. ; applied to grazing sheep and beasts ; though some in tillage.

*Observations.*

The facts here registered contain such proofs of fertility as perhaps no other district in the kingdom can equal ;—certainly none of equal extent. That the reader may have a clearer idea of these various proportions, I shall draw them into one short table, for the richer pastures.

Places.	Sheep in summer per acre	Acres per bullock in summer, with the sheep.	Sheep in winter per acre.	Rent.
Long Sutton - - -	5½	2½		
Mr. Scroop - - -	11	no Bullocks		
Boston, &c. - - -	4	1½	2	
Skirbeck - - -	5	1½	2	
Boston - - -	5	1	3½	
Deeping Fen, Mr. Graves - - -	5½	2	1½	40
Alderchurch, Mr. Berridge - - -	7½	2	3	
Swineshead - - -	2½	1	2	
Ewerby - - -	3	2½	2	30
Horbling, &c. - - -	3	2	2	
Howel - - -	3	3	2	
Immingham - - -	1	1½	2	
Grainthorp, &c. - - -	3	3	1½	
Stallenborough - - -	2	2	2	
Skidbrook - - -	1½	1½	½	
Ditto, &c. - - -	2	2	2	35
Addlethorpe - - -	5	1½	2	40
Gosberton - - -	6	1		
Burgh, &c. - - -	5	2	2	40
Wrangle - - -	2	2	—	36
Hundred of Skirbeck - - -	2	1½	2½	45
Wibberton - - -	5	2	2	
March Chapel - - -	3	2	—	35
Ditto - - -	3	1	—	45
Grimsby - - -	2½	1	2½	
Average - - -	3½	1½	2	

Considering the size of these sheep, which cannot be estimated at less than 24 lb. a quarter, on an average; and that the bullocks rise from 50 to 100 stone (14 lb.) this rate of stocking is very great indeed: here are on every acre 360 lb. of mutton, and reckoning the bullocks at 42 stone, dead weight, there is also 336 lb. of beef; in all, 696 lb. of meat per acre in summer, besides the winter

produce, which is immense. Let us, to simplify the account still more, suppose the whole mutton, and it amounts to  $7\frac{1}{2}$  sheep per acre, of 24 lb. a quarter, for summer, besides 2 in winter. The wool is another great article, at  $3\frac{1}{2}$  sheep per acre, and 9 lb. the fleece, each acre gives  $43\frac{1}{2}$  lb. of wool. These products from such a considerable extent of country, are matchless.

Respecting the proportion of rent and produce.

			<i>Rent.</i>			<i>Produce.</i>		
			£.	s.	d.	£.	s.	d.
Boston	-	-	3	0	0	10	8	0
Saltfleet	-	-	2	0	0	4	15	4
Wainfleet	-	-	1	15	0	3	13	4
Wrangle	-	-	1	16	0	4	16	8
Hundred of Skirbeck	-	-	2	5	0	6	6	0
March Chapel	-	-	1	15	0	3	0	0
Ditto	-	-	2	5	0	6	0	0
			<hr/>			<hr/>		
			14	16	0	38	19	4
			<hr/>			<hr/>		

Upon this proportion the landlord, for every 20s. produce, takes 7s. 7d. in rent.

To compare these particulars with the rich marshes of Somerset, we may observe, that Mr. Billingsley, in his able Report for that County, reckons 100 oxen bought in, half at £ 11. and half at £ 7. to 200 acres, besides summering 70 sheep, and 100 wintered; the land 40s. an acre; this is one beast, and less than half a sheep an acre, the landlord taking in rent £ 400. out of £ 830. the proportion is much higher than in Lincolnshire; yet the Lincoln land is much higher stocked, as will appear, if the size of the oxen and of the sheep be considered. And this part of the comparison touches on a point which would probably, could it be estimated, increase our reasons for supposing the Lincoln marshes superior



to the others, and that is the one paying such a produce by a breed of cattle not in general esteem ; and the produce of the Somerset land being applied to perhaps the most celebrated breed in the island. Is there any land in that county which equals the minutes here noted at Boston, Alderchurch, Long Sutton, and Gosberton ? and which would go much higher than the above produce of £ 38. on a rental of 14.

### *Feeding.*

In the low land in Barton on the Humber, there was a horse-pasture and a sheep one contiguous, and upon the inclosure it was remarkable to observe the great difference between them ; that had been under sheep so greatly superior.

In the tract of marsh land on the sea coast they observe, that where most grass is left in autumn, there the herbage is the coarsest and worst next year ; the remark was made at Louth, in answer to recommending eddish for spring feeding sheep, which would not do on rich marsh, though it might, they thought, on uplands. It also shews, that the Romney Marsh system of close feeding is right, and would answer as well in Lincolnshire.

In the hundred of Skirbeck they like to have a tolerable head of grass in the spring, before turning in ; and afterwards so to stock as to prevent its getting coarse by *running away*, so as to prevent the necessity of *hobbing*, which, however, must be done in a wet growing season.

Mr. Parkinson observes, that the less sheep are changed the better ; this remark, which I take to be very just, demands attention : it bears on the question of folding. Beasts are changed while *hobbing* is done ; and the sooner it is hobbled the better ; if cut while young, cattle will eat it.

*Mowing.*

Mowing rich marsh lands cannot be done too tenderly. At Moulton, between Sutton and Spalding, they have greatly damaged their fine lands by overmowing; the same at Woplade.

All land that will feed cattle, Mr. Parkinson observes, should be mown as little as possible; nothing pays worse than the scythe in Lincolnshire; it costs as much labour as a crop of corn, and more than in many counties, and is not of half the value.

*Hay.*

In making hay it is observed here, as it has been in many other districts, that clover and sainfoin, and some other grasses, should be left in the swarth for some time, and when stirred, only turned; shaking out is found to be pernicious, not only in loss of leaf, but in exposing to damage. The same observation is found in fresh seeds.

It is observed very generally in Holland Fen, that the hay, though upon land of 27s. an acre rent, is very bad, and will not fatten a bullock, or contribute to it, as is common in other countries. This must be owing to the bad management in making it: among other instances, it was mentioned to me, and I saw it myself, that they will leave the swarths, as they fall from the scythe, untouched so long that the grass under them is turned quite yellow.

About Folkingham they mow and leave in swarth, in the manner above described; turn it instead of shaking; the system is therefore the same.

At Ewerby I remarked, that in making haycocks women were employed, who did the work with rakes; the consequence is, putting it together in lumps so imperfectly connected, or rather with such great interstices between them, that if rain comes it must do great damage;

whereas, when made by men with forks, the bunch over the fork, it laps layer upon layer in a manner to shoot off rain. Every thing in haymaking that I have seen in Lincolnshire, is barbarous. About Grantham and Belton, hay made in the same manner ; the grass bleached by the swarths.

From Grantham to Lincoln, Gainsborough, Barton, every where in their hay some time after harvest began ; at the latter place, carting hay Sept. 3d ! this is too barbarous. About Grimsby, and to Alesby, much hay out, and some not on cock ; colour hideous. They defend themselves by saying, that the springs are so cold and backward after turnips are gone, that they are forced to feed all their mowing grounds late. I mentioned to Mr. Skipwith, kept eddish, but it did not make the impression so admirable a provision merits.

From Louth to Saltfleet much hay out, Sept. 15th, and hundreds of loads between Sutton and Alford ; indeed very little was cleared. In this tract I saw them drawing hay from all parts of a field to the center with horses and ropes, in order to form a stack without the trouble of carting ; the frame for this work, a plate of which I inserted in my Northern Tour, is much superior.

About Spilsby and Dalby, hay out the 18th of September, arising from want of labourers, not feeding in spring, fit to mow before it was done.

Sept. 26th, hay out in the hundred of Skirbeck.

Mr. Parkinson accounts for such lateness by observing, that the county is full of sheep, and they cannot spare the land early enough to have a forward crop of hay ; not till the pasture land is increased enough to receive the sheep.

Mr. Loft of Marsh Chapel defends the practice of being late in the hay ; he is not convinced that Mayday is not as good a time to save meadows in the Middle Marshes, as Lady-day ; and asserts, that the *proof* of such hay is

*feeding* cannot be exceeded, though bad for cows: and he remarked, that if marsh hay was *tedded* (strewed out), it would be good for nothing for bullocks; and further, that some rain in making is beneficial; he would rather have six hours rain than none at all. Even with what I called execrable management and bad weather, the hay alone, without other food, will make bullocks very fat. Also, that the hay from the *ings*, at 10s. an acre rent, is much better for bullocks than that from rich grazing grounds.

The men at Marsh Chapel and Grainthorpe, &c. are famous for cutting hay stacks *round*; they cut them as true as if turned in a lathe.

#### *Breaking up Grass Lands.*

Joshua Scrope, Esq. at Long Sutton, upon the inclosure of that common let 60 acres for woad for three years, at £4. per acre per annum net rent. After that he took it into his own hands, and ploughed it for oats, getting 11 quarters an acre. Upon the oat stubble he sowed wheat 5 quarters an acre, at £5. a quarter; clover was sown with it, which was mown and fed, and sowed to wheat again, 5 quarters an acre, and now would let at 40s. an acre; the land not being the least hurt, either by the woad or the successive tillage.

Some upon breaking up this common, sowed oats at first, but they grew too rank.

Others let it to flaxmen at £3. or £4. per acre; but they think that flax *draws* the land more than woad. No hemp.

In Holland Fen woad is reckoned of all others the most profitable way of breaking up, for the woad-planter gives 4 or £5. per acre per annum, for three years, for that crop, and then great ones of corn are taken. This is

the way Mr. Cartwright has managed. See *Woad*. Mr. John Tannard had £4. per acre for the woad, and then took two crops of oats, each of an immense produce; and then two crops of wheat, the first 6 quarters an acre, and the second (this year) promises to be as much.

Dr. Johnson of Spalding, let 300 acres of Moulton common, on the inclosure, to a woad-grower, at May-day, 1797, at £5. per acre per annum, for four years; and four years more for three crops of oats, and a fallow, at 30s. an acre, which oat rent, however, is much below the value; he is informed, and believes that woad does no harm to the land.

No instance of breaking up grass land that I had heard of in Lincolnshire, proves the extraordinary fertility of that county more clearly than that at Wintringham, on the estate of Lord Carrington, who, upon the high price of corn, was willing to indulge his tenants with the leave which they desired, of ploughing 200 acres, and for which they offered a compensation in rent; a great part of which, however, upon the sudden fall in the price of grain, which happened soon afterwards, his Lordship, I was informed, spontaneously remitted. Lord Carrington had requested Thomas Thompson, Esq. of Hull, who has the management of this estate, to meet me at Wintringham, and to give me every information in his power. Mr. Thompson was so obliging as to do this, in the most liberal manner; and assembling three or four of the most intelligent tenants, I wished to know from themselves, what their expectation of produce was, upon their own calculation, which had induced them to wish for this permission. I held the pen while they gave me, in answer to my inquiries, the following particulars.

The land was warp marsh, on the banks of the Humber; had been under sheep and bullocks, and by the ac-

count of one of the tenants, kept heretofore a small bullock and 8 sheep an acre; but finding that bullocks did not pay so well as they ought, they were gradually changing them for sheep. The high price of corn was of course their inducement to wish to plough. They have sown two crops of oats. The first crop, 9 quarters an acre; and the second promises to be 8 quarters.

But one piece of the same 15 acres was broken up before, and cropped thus,

1792, Oats 9 or 10 quarters.

1793, Oats.

1794, Oats.

1795, Turnips.

1796, Oats.

1797, Wheat.

Mr. Chapman also has broken up in this course,

1793, 1. Oats, 8 quarters.

1794, 2. Rape, 5 quarters.

1795, 3. Oats, 8 quarters.

1796, 4. Rape and potatoes: rape, 5 quarters; potatoes, 100 sacks.

1797, 5. Wheat,  $3\frac{1}{2}$  quarters, being too rank.

*Calculation of the Tenant's Course, who supposed the Land worth £ 5. 10s. an acre.*

	£.	s.	d.
Rent	5	10	0
Poor-rate, &c. 1s. 8d.—Constable 3d. per annum; say in all	0	3	0
One ploughing	0	12	0
Harrowing	0	6	0
Seed, 1 quarter, at	1	10	0
Carried forward	8	1	0

				£.	s.	d.
	Brought over	-		8	1	0
Reaping	-	-	0	15	0	
Leading 3 loads	-	-	0	4	6	
						0 19 6
Stacking and taking in	-	-		0	1	6
Inning in barn	-	-	-	0	1	0
Thrashing 10 quarters	-	-		0	10	0
Dressing and delivery, 3d. a quarter	-			0	2	6
						9 15 6
Second oats the same, though 2 ploughings						9 15 6

*Potatoes*

Rent, &c.	-	-	-	-	5	13	0
3 ploughings	-	-	-	-	1	1	0
Seed, 7 sacks, 1s. cutting	-	-	-	-	2	9	0
Planting every third furrow	-	-	-	-	0	5	0
Hoeing	-	-	-	-	0	7	6
Ploughing between	-	-	-	-	0	1	6
Weeding	-	-	-	-	0	1	0
Ploughing and picking, and pycing contract					1	11	6
Riddling or hand-picking, and delivery, 80 sacks, 3d.	-	-	-	-	1	0	0
							12 9 6

Price kidney 3s. 9d. £ 15.

Refuse ———

*Third, Wheat.*

Six quarters expected ; let us calculate on 5.

Rent, &c.	-	-	-	5	13	0
Ploughing and harrowing	-	-	-	0	7	6
Carried forward	-			6	0	6

				£.	s.	d.
	Brought over	-	-	6	0	6
Seed and sowing, at 6s. 6d.	-	-	-	0	17	6
Gripping	-	-	-	0	1	6
Reaping and harvest	-	-	-	0	17	0
Thrashing 5 quarters	-	-	-	0	10	0
Dressing and delivering	-	-	-	0	1	6
				<u>8</u>	<u>8</u>	<u>0</u>

<i>Expences.</i> —Oats	9	15	6	<i>Produce, at 30s.</i>	15	0	0
Oats	9	15	6		15	0	0
Wheat	8	8	0		12	10	0
Potatoes	12	9	6		15	0	0
	<u>40</u>	<u>8</u>	<u>6</u>		<u>57</u>	<u>10</u>	<u>0</u>
					40	8	6
					<u>4</u>	<u>17</u>	<u>1</u>
							<u>6</u>

Profit per acre, per annum, after reckoning

£5. 10s. per acre rent	-	-	4	5	4
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Such was the expectation of the Wintringham farmers when they desired liberty to plough ; and the vast fall in the price of corn shews that they were not singular in opinion ; the plough went merrily to work elsewhere, as well as here. I do not think it a very bad rule, on such occasions, to pursue the reverse of what the world is doing ; when every body else is ploughing up, to take that moment to lay land down to grass ; and should such a phenomenon ever be seen, as a rage to lay down, that should be the time for ploughing up. As this case of Wintringham is, however, a remarkable one, it deserves some further attention ; for here are documents which not only prove the vast fertility of this estate, but which enables us to calculate the fair rent



of such land under different circumstances: and the first object is to suppose an average price of corn, such for instance as 44s. for wheat, 24s. for barley and beans, and 18s. for oats; and we will leave out rent, to be the result, and not the basis of the calculation.

*Expences.*

	£.	s.	d.
Of the first oats, rent, and extra price of seed deducted	-	-	-
	3	10	6
Ditto of the second	-	-	-
	3	10	6
Ditto of the wheat	-	-	-
	2	9	0
Ditto of the potatoes	-	-	-
	6	16	6
	<hr/>		
	16	6	6
Interest of the farmer's capital, suppose £7. an acre, at £20. per cent. * 28s. for four years	-	-	-
	5	12	0
	<hr/>		
	21	18	6
	<hr/>		

*Produce.*

10 quarters † of oats, at 18s.	-	-	-
	9	0	0
10 quarters ditto, at 18s.	-	-	-
	9	0	0
5 quarters of wheat, at 44s.	-	-	-
	11	0	0
Potatoes	-	-	-
	15	0	0
	<hr/>		
	44	0	0
Expences	21	18	6
	<hr/>		
Remains for landlord (tithe free) and poor	22	1	6
	<hr/>		
Per annum	-	-	-
	5	10	4
	<hr/>		

\* As the capital is large on these rich soils, and the hazard, from the largeness of the crop, great also; a higher profit than common should be allowed; this hazard will necessarily arise with very heavy crops; in such the produce ought not to be reckoned at as high a price as the seed; they are very liable to be beaten down, and then the quality of the grain suffers considerably.

† This, as a fair produce, I was assured of by other persons.

But it is further to be observed upon these calculations, that they are applicable to the case no longer than the crops produce, as supposed, 10 and 5 quarters of oats and wheat; if these fall to 8 and 4, the result will then be as follows,

<i>Expences</i> , as before	-	-	-	£.	s.	d.
				16	6	0
<hr/>						
<i>Produce.</i>						
8 quarters of oats, at 18s.	-	-	-	7	4	0
8 ditto, ditto	-	-	-	7	4	0
4 quarters wheat, at 44s.	-	-	-	8	16	0
Potatoes	-	-	-	15	0	0
<hr/>						
				38	4	0
<i>Expences</i>	-	-	-	21	18	6
<hr/>						
Landlord, church, and poor	-	-	-	16	5	6
<hr/>						
Or, per annum	-	-	-	4	1	4
<hr/>						

Without regarding any course of crops, which these farmers may now have in contemplation, I shall observe, that as they have taken

1. Oats,
2. Oats ;

Would it not be beneficial to induce them to go on somewhat in this manner ?

3. Potatoes.
4. Wheat.
5. Hemp or flax.
6. Wheat.
7. Beans.

8. Wheat.
- 9 Rape,
10. Oats,
11. Beans.
12. Wheat.

Here are great objects gained ; three crops of white corn in succession are avoided : and no two of such grain follow afterwards. Two crops of beans are had, and only one of potatoes. These circumstances would much more than make amends for the admission of the rape and hemp ; nor let it be forgotten, that no crop cleans land like hemp.

From these estimates it is sufficiently clear, that this land cannot be worth, for twelve years, less than £.4 per acre, at these prices of the products ; and by means of this scale of calculation, it may easily be adapted to any other prices, as well as afford a landlord the means of knowing when, and in what degree, allowances ought to be made for low prices, or a fair increase of rent for high ones. From the known liberality of the noble proprietor, and the integrity of the gentleman who manages for him, I have no doubt of the tenants having every proper inducement for pursuing good courses of crops ; and I am very clear (indeed the preceding particulars taken from their own mouths prove it) that at average prices of the products, these marsh lands may be kept in tillage, probably for ever, at a rent of £ 4. an acre, by proper alternation of grass and corn, &c. to the mutual advantage of both landlord and tenant.

Five acres and a half of horse pasture in the low land on the Humber, at Barton, were broken up and sown with oats, a great crop ; and then sown again with oats, which produced 72 quarters.

About Saltfleet there has been some rich marsh land ploughed in this course,

1. Oats, 10 or 12 quarters an acre.
2. Cole ; when seeded 5 quarters.
3. Oats, 9 or 10 quarters.
4. Beans.
5. Oats.
6. Wheat.

Some of it inexhaustible by ploughing ; and after a long course of crops yields great products. No hemp or flax ; but great tracts have been woaded under the rent of £ 3. an acre.

At Dalby, when grass land is broken up, Mr. Bourne takes,

1. Oats.
2. Oats.
3. Turnips or cole.
4. Oats or barley.
5. Turnips or cole manured, laid down with grasses.

Mr. Linton of Frieston,

1. Oats, 8 or 9 quarters.
3. Wheat, 4 quarters.
2. Beans,  $4\frac{1}{2}$  quarters.
4. Turnips.

In common management, they repeat oats twice or thrice, and sometimes a fourth, and after that wheat ; a field of 30 acres this year wheat after 4 of oats.

Mr. Parkinson observes, that the less that is broken up the better, except in sandy or convertible, or weak, inferior, dry, open soils, where it is an improvement ; on other land, better to leave the grass ; but if permitted to plough as they like, they look only to virgin land, and will not pay a proper attention to the landlord's interest. When it is done, it has been under careful landlords, 1. oats ; 2. turnips ; 3. barley ; 4. turnips ; 5. barley ; and seeds for twenty years. Others have pared and burned for turnips ; 2. barley ; 3. turnips ; 4. barley ; and seeds for sheep.

Mr. Loft of Marsh Chapel, is of opinion, from consi-

derable experience, that to plough grass which pays well is a bad system ; yet much is done so. It is right only on land that is unprofitable, and which will be improved for grass by a course of tillage. Even on the Wolds some lands have been ploughed to great loss ; the sheep walk at Wyham near Louth, was the largest and best in the whole county ; and very bad management to plough it. The Rev. Mr. Allington coincides with this idea ; and remarks, that the excellence of this walk was possibly owing to the good management long ago, when laid down, as some very large antient marl pits are on it, which marks attentive husbandry ; and, as he observes, that for the last three or four years, the appearance seems that it will soon be of no better quality than the rest of the country. I crossed these walks, and may observe, that I found the country, from S. Elkington to Binbrook, in general more like a desert, than what such land should exhibit ; extensive fields that had been ploughed up, and were over-run with thistles that had seeded, left in such a wild state that it was horrid to see it : warrens join in some places, which account for it partly ; they are rarely met with, without seeming to have an ill effect on the minds and conduct of all around.

*Laying down to Grass.*

A tract of land called the New Marshes, which were ploughed for several years after they were first embanked, and treated much as Sutton commons now are, were immediately upon being laid down, and continue to be, the finest pastures for sheep feeding of any in the county. So also will those parts of Sutton common be, if properly laid down, where the under-stratum is of a clayey quality :—where it is all silt, as in most of the *old* marshes, all the fallowing, all the manuring, all the new theories on husbandry in the world, will not be able to make such

land continue in a feeding capacity. The great disadvantage these marshes are subject to, is, the want of fresh water for beasts.—Ponds or pits are obliged to be made here to retain the fresh water ; sometimes natural living springs are found, and the water perfectly fresh ; but in very dry seasons these reservoirs are either exhausted, or so corrupted by the cattle running into them on hot days, that they cannot thrive ; or they take to drinking the salt water, which is took in at the spring tides to make fences, which scours them, and causes a fever. In wet seasons, from certain saline qualities lurking in the herbage, the effect of which is the same as if they drank the salt water ; and if not quickly removed to the old inclosures, or what is better,—some fen land, they speedily die. This inconvenience obliges the grazier to run his sheep thicker, in a wet season especially, than they can feed, or sometimes even thrive, turning crones, unless removed, and also much affected with the foot halt.

“ Hay seeds,” says Mr. Cartwright, “ so called, abound in general with seeds of various plants unfit for either pasture or meadow, with troublesome and pernicious weeds, and even with grasses deserving no better appellation. Hence it seems best wholly to abandon the use of *hay seeds*, and to lay down land with nothing but such grass seeds as can be obtained separately and pure ; trusting to nature for a supply of such other grasses as the soil may peculiarly affect.

We therefore want cultivators of distinct and separate grass, who, in this age of improvement, would probably find their account in such cultivation. For fen land, the *smooth stalked* and the *rough stalked meadow grass* deserve to be cultivated largely. In my small experimental meadow, or nursery of grasses, wherein are at present nine sorts, the *rough stalked meadow grass* is invariably shorn close to the roots by the sheep, whenever they are admit-

ted, and is much preferred to most of the other sorts, particularly the *fescue*, of which I sowed a large plot, in hopes of finding it peculiarly relished by the sheep.

Of the *smooth stalked meadow grass*, in the year 1791, I noticed, that in February its growth was vigorous, its verdure deep and bright, and its taste nearly as sweet as liquorice. I thought I had discovered a new species, that for its saccharine juices might rival Fraser's American grass, and accordingly transplanted a large sod into my garden ; where, in the flowering season, its species was ascertained.

The original maiden pasture of fen land does not wear so good a complexion, nor support so much stock, as after it has undergone a course of tillage. As this may be attributed in a great degree to bad grasses having possession of the soil, and some of them of an aquatic nature, favoured and established by former inundation and neglect of drainage ; so it seems to be of consequence, to keep the land dry in future, that such grasses *may not return*. Both in a state of pasture and of tillage, these lands are very subject to *goose grass* (*potentilla argentina*). He who shall teach us how to eradicate this weed, will deserve our thanks. Deep ploughing, and carefully picking out the roots, is the best mode I at present know."

In Holland Fen they sow white clover, rib grass, trefoil, and 8 bushels of hay seeds, and without corn, on which 14 sheep and 14 lambs have been summered the whole season through per acre, which is prodigious.

About Folkingham when they lay down, it is after turnips, and with a crop of spring corn, sown thin ; the seeds used on heavy soils, trefoil, with red and white clover, and good hay seeds. On light soils more white clover, less red, and hay seeds. Mr. Hoyte has laid a boggy meadow drained to grass, by sowing Yorkshire white, one bushel an acre, with white and red clover, and

parsley ; and it has answered very well, and supported a great stock, which have done exceedingly well.

Mr. Harrison makes an observation which has a good deal of truth in it ; he says, that good old grass should never be broken up, and strong clay arable never laid down ; the former is sure to be mischievous to the landlord ; and the latter to ruin the tenant ; the observation of course goes only to those soils, which, after one or two years, refuse to produce grass, wear out, and remain, if kept down for an age, sterile, till time brings a stratum of vegetable mould, to form the matrix of a good turf. The fact is certainly so ; and a great desideratum it is to discover plants that would not thus decline. I have no doubt of such existing. On good soils the mere age of grass is of evident consequence in this country ; for on the slope of the heath, from Kirton to Glentworth, passing through several lordships, inclosed at very different periods, and laid down to grass at the time, there is a great difference between Hempswell, a new one, and Willoughton, thirty years ; also between Willoughton and Bliborough, which may be seventy or eighty years ; there is a rich luxuriance in the verdure not easily described, that mark a fertile pasturage, which nothing but age seems to give.

There is no clearer proof of excellent soil than laying down affords ; for if the seeds do not after three or four years decline, but keep improving in quality, we may determine safely that the land must be excellent ; at Wintingham I saw this proof, amongst a hundred others ; I viewed a new ley of Mr. Chapman's in the fourth year, and it was to the eye a rich old pasture, full of white clover, and crested dogs tail.

In Barton new inclosed field, I could not but admire Mr. Uppleby's new layed seeds, which were very thick and fine ; he sows 16lb. white clover, 4lb. trefoil, and 8



bushels of hay seeds, which hay seeds cost 10s.; this expence is enormous, and carried further than necessary, however, the error is on the right side. The second and third years' grass were perfectly fine. The same gentleman has also laid 160 acres in Goxhill, fourteen years ago, with 14lb. white clover, 4lb. trefoil, and 1 bushel ray grass; it is now a very fine pasture. On part of it the soil is a strong churlish clay, fit for wheat and beans; yet the grass has taken well, and not declined; much crested dogs tail come naturally, which is a good sign.

. In all the Wold country near to Brocklesby, they have a common custom of laying to grass by sowing the seeds with rape; and they reckon it an excellent custom; indeed the best of all methods. What Lord Yarborough lays down in his park, &c. is done thus.

. Mr. Bourne of Dalby, lays down by sowing white clover, red clover, trefoil, ray grass, with turnip and cole, and finds it succeeds well.

. Best way, Mr. Parkinson says, is 12lb. white clover, and a bushel of best ray grass; or better still, 3 bushels of finest hard hay seeds from Yorkshire. He does not approve *Yorkshire white*.

. The Rev. Mr. Allington has been anxious to lay down with such seeds as will last in the ground; but has not hitherto found any thing better than white clover and trefoil; if with ray grass, not more than a peck an acre of very clean seeds; he has tried *Yorkshire white*, and does not approve it.

Mr. Holdgate of Thoresway, in laying down for rabbits, sows 4 or 5lb. of white clover and trefoil, and 2 or 3 pecks of ray grass, with some hay seeds; he feeds it with sheep for two years, as he has found if rabbits are admitted sooner, they eat the plants to death in one year. Upon ray grass he remarked, that there is nothing upon earth so destructive to land as seeding a crop of it; and

where land will produce any thing else, the less that is sown of it the better.

Mr. Walker of Woolsthorpe, 8lb. red clover, 5lb. white,  $\frac{1}{2}$  peck ray grass to continue, and answers well ; and on the red sand a natural herbage of red clover comes.

From these notes it appears, that this very important object is as well understood in Lincolnshire as in any other county of similar climate, and better than in some ; but the fact is, that it is well practiced commonly in none. Where the soil is so good as to run well to grass, good layers are easily formed ; but upon soils which have not this quality, for want of grasses being selected, which are adapted or natural to the land, the new meadow soon wears out and becomes unprofitable. Mr. Cartwright's observation on the smooth stalked meadow grass, deserves attention, that it may be propagated and sold. The value of crested dogs tail is seen in this as in many other counties ; and the method of laying down with a crop of rape for sheep feed, is very well worth imitation in many districts. The question of Yorkshire white remains undecided ; but opinions are more against than for it. Nor is ray grass by any means a favourite.

## CHAPTER IX.

## GARDENS AND ORCHARDS.

I CANNOT let this title pass without observing, that there is nothing in Lincolnshire more mistaken than the idea, that a garden may be considered as an object of luxury, and not of profit. There is no part of a farm that is more beneficially productive, with views of economy, than a well cultivated garden. It is pleasing to see instances where this observation is realized ; and I appeal to Mr. Hoyte of Osbornby, whether he does not find 3 roods of land, cultivated as a garden ought to be, without a weed in it as long as a pin, is not a profitable speculation for a family ?—His, of that size, produces all the common culinary vegetables, and yields this year 3000 plants, including Swedish turnips, for tups kept in an adjoining close.

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## CHAPTER X.

## WOODS AND PLANTATIONS.

THE berry-bearing poplar, brought from Nottinghamshire by Mr. Cartwright into Holland Fen, thrives very greatly, and much exceeds the Lombardy, they are 18 or 20 feet high in six years.

Mr. Hoyte of Osbornby has made some small plantations of the Dishley willow, which have thriven extraordinarily well; and yielded him, perhaps, a better produce than any other land on his farm.—Neglected, miserable, boggy, and deserted spots are thus converted to productive gardens; and no attentive farmer should omit a practice so very profitable; his yield 12 guineas an acre.\*

Had Sir Cecil Wray been in the country, I should have had much valuable information from him; but being absent, I took the liberty of troubling him with some inquiries, which he did me the favour of answering.

“ My plantations consist of 260 acres; and have been made at such periods (from 1760 to 1794), and in such proportions, that I can give no satisfactory answer on that head:—They consist principally of Scotch firs:—on my commencement as a planter, I planted oaks, ashes, beeches, elms, silver firs (in small quantities), spruce, larch, and Scotch fir.—My purpose was to follow up those species of trees which throve best, as it was essentially necessary for my comfort to clothe, as quick as possible, a situation in which I had not even a thorn or whin growing.

The larch, oaks, ash, and beech made no little progress

\* The woods in the south part of this county produce *oak*, *ash*, and *poplar*, about one-third of each, and scarce any other sort is to be met with therein, except a tree (the real name of which I could never learn), called by the woodmen *Pill-Bass*: it seems to be of the poplar class, but a distinct species.—Oak sells at various prices per foot, according to the purpose it is fit for: that sort used for fencing, and other farming purposes at 1s. 6d.; but that of larger dimensions for building uses, near double. Ash and poplar have of late years been sold readily at 1s. per foot; and the latter is much used in building (since the high price of fir), and proves very durable if kept dry, agreeable to the woodman's adage,

“ Cover me well, to keep me dry,  
“ And *heart* of oak, I do defy.”

Cragg.

during the first three years ; and the Scotch fir got on so well, that I planted for the ensuing ten years scarcely any other sort ; a thing I now repent of, as their value is comparatively very small : but in size, I have this year cut up several oaks not 6 inches round, planted with the Scotch firs, many of which are from 4 to 6 feet.

The silver fir has grown extremely well ; but (as it is said) will in all probability be short lived ;—they are, however, my finest trees at present.

The spruce fir also grows well and large ; and many of my beeches are as tall, though not so thick as the firs they grow amongst ; but this respects only a few of them, as many do not thrive so well.

Having some reasons to think better of my larches, I recommenced their propagation, about fifteen or sixteen years ago ; and now have about 53 acres of them growing completely well ; and, from the value of the wood, promise to pay twice as well, at least, as the Scotch.—Last year, I sold some larches, which I thinned out of the plantation at £ 5. per hundred ;—Scotch of the same age, at £ 1. 10s. per ditto.

I cut down every year a quantity of my oldest Scotch firs to give room to the forest trees, and sell them at 8d. per foot, or use them in buildings, for farm houses, barns, &c. in which they answer very well ; also thin about 12 or 15 acres of the smaller sort, which I sell for rails, &c. to the farmers in the neighbourhood, at £ 1. 1s. £ 1. 10s. £ 1. 15s. per hundred.—The whole profits arising annually to me from my plantations, are from £ 150 to £ 200. clear of all expences.

To state more particularly the profits of thinning a plantation of Scotch firs, I did this year thin 12 acres.—The refuse trees (not big enough for a rail), and tops of the others, paid all expences.

The quantity per acre, 700, at £ 1. 10s.

£.	s.	d.
10	10	0
<hr/>		

The age of the trees fifteen years ;—the utmost value of the land 5s. per acre. But for several years the cattle and sheep have eaten the grass in the plantation, which is very near as good for the sheep, and better for the cattle, than where not covered with trees.—The expence of making and fencing the plantations did not exceed £ 2. per acre. As to the value of the trees left standing, it is at least equal to those cut down, and in a few years will considerably exceed them.

To state the expence, I should say, to planting	2	0	0
To fifteen years interest on ditto	1	10	0
To ten years rent of the land	2	10	0
To compound interest on ditto, and other incidents	1	0	0
	<hr/>		
	7	0	0
	<hr/>		
Total profit	3	10	0
Add the wood now growing	10	10	0
I think I do not overstate it at per acre	14	0	0
	<hr/>		

Have no doubt that my larches will, at least, be double.

As to general observations, gentlemen differ so much respecting their modes of planting and management of trees, that I can only give you my opinion: First, that I would always plant each species of trees by itself ;—at least, I would never plant Scotch firs intermixed with others, on the idea that they are good nurses. Plants require very little shelter in winter ;—they suffer most in summer ; and the Scotch fir soon becomes, from its spreading branches, a bad neighbour.—Gentlemen say, they would weed them out ; but they never do it in time to prevent the mischief.

Second, that I would never plant a tree older than two years seedlings.

Third, that I would never put so many on an acre as the nurserymen persuade us to do : 2000 the very utmost ; 1200 full sufficient.

Fourth, that I would always trim off the side branches ; this should be done when so small as to be cut off with a knife ; when delayed till the bough is large, it makes an ugly wound, is long in healing up, and if suffered to die on the tree, makes a hole in the timber :—on the contrary, if cut off very soon, it grows over, and the wood has no wound or knot in it. I know this article is much controverted.

Having rather spoken against Scotch fir, give me leave to say a word in their favour.

First, they grow fast ; and the wood is of sufficient use for farm houses, &c.

Second, the poor people supply themselves with very good fuel by gathering the fir-apples, and rotten wood ; you will sometimes see twenty children in my plantations *appleing*, as they call it.

Third, the green boughs keep deer completely well in winter ; and save much hay if given to sheep, particularly in snows : I have sometimes 3 or 400 sheep grazing on them at once.

Fourth, the boughs are of great use in ovens, fire-wood, fencings, &c.—I sell £ 30. every year.” When it is considered that these observations are the result of such extensive experience, their value will not be doubted.

About Norton-place Mr. Harrisson has formed a large range of beautiful plantations, which surround and break his lawn, except where it opens to the Wolds ; and these in twenty-two years have flourished so rapidly, that he has cut larch of a considerable size ; and has inclosed 800 acres from the thinnings.

Of all the planters in the county, Lord Yarborough

takes the lead ; for ten years past he has planted 100 acres per annum, which he is continuing in the same proportion ; but designs soon to lessen it, as the lands he had assigned for that purpose will nearly be covered.

The following is the system of Sir Joseph Banks's woods, which have been very carefully managed since 1727, in a rotation of twenty-three years. The full grown oak timber is weeded out in the proportion of one-fourth, in the woods of the best quality ; and one-fifth upon the inferior land. The aquatics, such as willow, sallow, alder, are all cut clean every twenty-three years ; the same with hazel, and all other brush. The ash, elm, &c. the full grown plants are cut, leaving a proportion of the best for the next crop. Of all sorts, leaving such as will pay for a second twenty-three years' growth : and the oak, upon a calculation of four successive growths, being ninety-two years when cut : and in some parts one hundred and fifteen years, or five growths ; but of this very little ; in general ninety-two. Produce per acre, on an average, £45. consisting of timber, bark, poles, and brush.

Mr. Parkinson notes, that in woods, a 40 pole piece of 1 rood, in some parts, produces oak trees from 60 to 80 feet, value from £8. to £12. and bark £6. 18s. ; and we have some trees sold for £24. ; the common medium average of our wood books are about

	£.	s.	d.
20 oaks, average 22s.	22	0	0
Bark about	11	0	0
Poles of ash, sallow, birch, &c.	10	6	8
Brush wood 3d.	2	0	4
Total of an acre, cut once in 23 years	45	7	0

In 4 pieces, 40 pole each, oak timber 2s. and 2s. 6d. per foot, and retailed at 3s. and 3s. 6d. per foot.

If younger oaks are taken, it comes to less.



## ANNUAL SALE BY WOOD AND BARK.

<i>Years.</i>	<i>Wood.</i>			<i>Bark.</i>		
	<i>£.</i>	<i>s.</i>	<i>d.</i>	<i>£.</i>	<i>s.</i>	<i>d.</i>
1757	478	2	3	32	0	0
1758	365	14	7	18	0	0
1759	397	18	4	26	0	0
1760	437	4	0	33	0	0
1761	470	15	11	33	0	0
1762	394	3	5	43	0	0
1763	433	11	10	43	0	0
1764	430	9	6	41	0	0
1765	480	16	6	44	0	0
1766	454	8	10	37	0	0
1767	509	16	7	37	0	0
1768	535	2	6	31	0	0
1769	488	18	7	34	0	0
1770	623	4	3	50	0	0
1771	602	9	6	45	0	0
1772	667	6	6	70	0	0
1773	977	13	8	100	0	0
1774	868	1	0	75	0	0
1775	856	5	9	65	0	0
1776	915	14	7	80	0	0
1777	903	19	10	90	0	0
1778	1102	15	9	90	0	0
1779	1067	15	10	75	0	0
1780	757	8	7	73	0	0
1781	655	6	2	63	0	0
1782	642	11	10	75	0	0
1783	825	4	7	95	0	0
1784	811	8	7	105	0	0
1785	879	0	0	90	0	0
1786	787	15	8	106	0	0
1787	1004	10	1	140	0	0

	£.	s.	d.	£.	s.	d.
1788	1053	10	6	112	0	0
1789	1258	0	2	170	0	0
1790	1260	9	1	150	0	0
1791	1589	8	9	166	0	0
1792	1752	14	10	250	0	0
1795	1305	0	0			
1796	1772	0	0			

The woods covering 805 acres; if £45. 7s. be taken as a medium, the produce is £1. 19s. 5d. per acre per ann. from land, which being amongst the worst in the country, would not produce, in an arable farm, more than 10s. or 12s. The produce not only from this fact, but on comparison with woods in general through the kingdom, 20s. being a high produce, must evidently be extremely well managed; and to have continued so through a long period to produce that large growth of timber for a regular fall, to be sold as part of the annual produce; and it is upon this circumstance that the great advantage depends.

Timber	-	£.33
Poles	-	10
Brush	-	2
		<hr/>
		45
		<hr/>

Thus the timber is the great object; for 35 acres at £33. are £1150. which, from 805 acres, is £1. 8s. 6d. per acre per annum. This great produce of near 40s. an acre, however, is the result of a vast capital gradually nursed up in wood always on the land; and it is fair to bring it to some valuation. In conversation with Mr. Parkinson, the steward, I found that the whole produce of an acre at the time of cutting would

vary from £150. to £300. in value. It is moderate to call it £200; hence then the 40s. annual produce is the payment from an acre of land united with a capital of £200; and viewing it in this light, the return of 40s. wears a very different aspect. I urged this to Mr. Parkinson, because he seemed to look only at the vast improvement of converting land, which, in any other application, would not pay more than 10s. or 12s. to 40s. per acre, which is certainly an immense difference; he further urged, that there might be difficulty in selling larger quantities than offered at present: this I cannot admit, for the immense rise in the demand, and consequently of *price*, is evident from the regular rise in value from 1759. But suppose this to have a very great effect, and to reduce the £200. one half, and that only £100. was the produce per acre; here is an addition of £55. which placed at interest, produces £2. 15s. for ever; and then the land being clear of all wood, enters on a fresh course as common copse, paying as other woods do in that system. If only 15s. per annum, it makes £3. 10s. per acre per annum for ever.

I would not be thought to speak with any degree of decision on this subject; but simply to suggest the propriety of re-considering the system. If, as I conceive, the above deduction of half the value would not be found admissible, in fact, the loss would appear enormous. But it is an experiment very easily made, and with the greatest probability of, at least, losing nothing by the trial. Thirty-five acres at £45. per acre, produce at present £1575. To receive the same sum at £200. per acre, only 8 acres would be cut. At £100. per acre, only 16 acres. Thus from 8 to 16 acres might be cut; and a new system begun, without loading the market more than at present: it would soon appear how much the annual quantity might be increased relative to the market;

and whether the additional age (the underwood being such a trifling object) would not render the timber and poles *more* rather than *less* saleable; which has been the assertion to me in various parts of the kingdom where hop grounds were not the consumption: for all objects of inclosure, the size of a pole for rails, &c. is a benefit, as they rive into any scantlings. The want also of that regularity in the quantity cut, which must be adhered to in the present system, would be a benefit; for it is much better to regulate that quantity by the *demand* than by the *system* of felling. Scantlings of underwood go from Sussex to the Newcastle collieries; surely Lincolnshire is much better situated to supply them? There is not a clearer head in Great Britain than that of the Right Honourable Possessor of these woods; and whenever the immense extent of his respectable pursuits will permit attention to such questions of his private interest, he will doubtless reflect on the vast capital he has thus employed at an interest, to speak in the mildest terms, rather inadequate; 800 acres at £200. are £160,000; at £100. are £80,000; such sums are worth attending to.

The Duke of Ancaster has woods to the extent of 4 or 500 acres.—Cuts at eighteen years growth; the whole underwood is cut, and the larger growth taken down in succession. The largest sticks not more than 30 feet;—takes out the wood that will not pay for standing, being not prosperous in the growth. The value of all cut down would not be more than £40. The value of an acre in eighteen years growth about £14. to £16. The land adjoining lets at 10s. 15s. and 20s. The cold wet land gives the best wood. It is bought for the purposes of fencing new and old inclosures. The eighteen years would not do for this; but that of two to three growths or fifty-four years does for these purposes: training up the finest and clearest sticks, in order that they may come to this application.

And as his Grace has much wood on a soil, that in other applications would be good for little else, the comparison must not be made with the country in general. An acre of wood is worth, upon an average, from £ 15. to £ 20.; or in general 20s. an acre. The objection to cutting the whole, is the saleable price; wood is most saleable when it is old; and if the Duke was to say, I will have the wood of eighteen years growth not cut, but leave it to thirty-six, would it be more or less saleable?—the answer was, More, Sir: leaving it to a greater growth would make it of more proportionable value, and more easily saleable. But in this case it would be necessary to cut the underwood, as at present, every eighteen years. The growth chiefly oak and maple; and Mr. Parker makes it a rule to cut them down, because their spreading heads injure the oaks and underwood. Poplar is also very injurious to the oak from its fast growth; he has observed that it has the effect of injuring the oak, and therefore he always takes it down whenever necessary to make way for the oak. Ash is trained up with care, because it is of as much value as oak; but sallow is not equally valuable, being generally cut down with the underwood. Where land can be let at 20s. an acre, it is much more advantageous than what woods will yield in this system. Would you, if the estate were your own, increase or decrease woods?—I would not attend to profit to a certain extent, because the repairs of an estate make it so valuable for buildings and fences, that I would keep a certain portion in wood for those purposes.

The Earl of Exeter has very extensive woods in Lincolnshire, about Bourn, &c. which pay him by underwood and timber, about 20s. per acre per annum. Bark here is sold by a proportion to the value of the timber; for instance, it is 6s. in 20s. of the gross amount of the tree.

## CHAPTER XI.

## WASTES.

I MUST consider commons, however naturally rich in soil, as wastes, and therefore class Spalding, Pinchbeck, and Cabbit commons as such, to the amount of many thousand acres ; 15,000 acres from it were inclosed long ago, when in a state of a forest, which the whole has been, as appears from the black oaks dug up every where. It was that of Arundel. An act is passed to drain it, but dormant for want of money. If inclosed, it would let for at least 20s. an acre, and probably much more. If a peace comes, it will be both drained and inclosed ; there is much of it peat, but much also of good mould.

Forty thousand acres in Sir Joseph Banks's fens would, if inclosed, let for 31s. 6d. according to the opinion of some ; in that of others, for 26s. In East fen are 2000 acres of water ; 32 parishes have right of common in these fens. At Brothertoft I crossed the ferry into Wildmore fen, and the little I saw of it was worth 40s. ; but whole acres covered with thistles and nettles, four feet high and more. There are men that have vast numbers of geese, even to 1000 and more. Mr. Thacker of Langrike ferry has clipped 1200 sheep on Wildmore ; and yet he assured me, that he would rather continue at his present rent, and pay the full value for whatever might be allotted to his farm on an inclosure, rather than have the common right for nothing. In 1793 it was estimated, that 40,000 sheep, or one per acre, rotted on the three fens. Nor is this the only evil, for the number stole is incredible : they are taken off by whole flocks. So wild a country nurses up a race of people as wild as the fen ; and thus the morals and

those who occupied the land. They proceeded to destroy the works of drainage, so that the country was again inundated as it formerly had been. After the Restoration, the adventurers repaired their works, resumed their lots of property, and began again to cultivate them; but the country, who always considered themselves oppressed, by trespass upon the grounds, compelled the adventurers to defend their rights by a course of law; in which it was determined, that the original agreement was not valid, and consequently the property of the whole level was vested in its original proprietors. From this time the drainage was carried on under the Court of Sewers, principally by means of the adventurers' drains; but the river Witham being neglected, and nearly silted up, they became so much oppressed, that application was made to Parliament in 1762, when an act passed, by which the present works have been made, which are probably sufficient to carry off the whole of the downfall waters; but till a catch-water drain is made to keep separate those that fall upon the hills, from those which fall upon the level, and a proper outfall provided, to carry the hill waters separately to sea, the expence of which will probably be equal, if not exceed that of the Witham drainage, the land can never be considered as safe winter land; neither can it be thought advisable to divide and inclose it. These fens, East consists of 12424 acres, one rood, one perch. The undertakers' drains left only 2000 acres under water; but I am credibly informed, that the outfall of Maudfoister, as that *gate* now lies, is capable of draining dry the deepest pits in that fen.

The West fen contains 16924 acres, 2 roods, 6 perches. As the undertakers laid that quite dry, there can be no doubt of the practicability of any undertaking there. The following parishes have a right of commonage on East and West fens.

*Soke of Bolingbroke.*—Sibsey, Stickmey, Stickford, W. Keal, E. Keal, Tointons, Haltons, Steeping, Thorpe, Spilsby, Hundleby, Rathby, Enderby, Lustby, Hareby, Asgarby, Miningsby, E. Kirby, Revesby, Hagnaby, Bolingbroke; 21 in number.

*Holland Towns.*—Boston, Skirbeck, Fishtoft, Free-stone, Butterwick, Bennington, Leverton, Leek; 8 in number.

*On Wildmore fen.*—Haltham, Roughton, Thidesby, Horncastle, Ashby, Low Tointon, High Tointon, Marcham on the Hill, Enderby, Moreby, Wilksby, Marcham le Fen, Coningsby, Scrivelsby cum Dalderby, Tumby, Kirkstead, Fishtoft, Firthbank; 18 in number; in all 47. Would let at 30s.

Upon driving West fen in 1784, there were found, 16th and 17th September, 3936 head of horned cattle. In dry years, it is perfectly white with sheep.

*“ An Estimate of the Common-right of a Farm at Revesby, in Tenure of Thomas Mackinder.*

Suppose the farm to contain 195 ewes for tuppings, and on an average to raise 180 lambs; the he-lambs to be kept in the inclosures, to make wethers for sale, because the common would make them too small and poor to raise much money for rent; but the she-hogs may be summered in the common, and by good keeping in the autumn, will be sufficient for ewes to breed;

	£.	s.	d.
Consequently, 90 she-hogs from the 8th of April to the 1st of October, being 25 weeks, at 2d. per head, per week		18	15 0
Carried forward	-	18	15 0
Q 2			



	£.	s.	d.
Brought forward	18	15	0
Suppose the farm to raise 8 calves in each year, and to keep the yearlings, cows, and feed- ing beasts; by that means there remains for the common 8 beasts two years old, and 8 beasts three years old, being together 16 beasts at 6s. per head, for twenty-five weeks	4	16	0
Brood mares and young horses, 8, at 10s. per head	4	0	0
Suppose the cart or working horses turned into the common at times when plenty of grass, which may enable the occupier to get more hay from his inclosures, taken at per year	2	2	0
To privilege of getting sods, &c.	1	1	0
Total	30	14	0
Deduct for loss of cattle, taken at one-seventh	4	8	0
Net profit	26	6	0
Deduct the tenant's profit in farming the com- mon, with expences, shepherding, &c.	13	3	0
Clear rent to the landlord	13	3	0

N. B. The same proportion is observed upon all the common rights in proportion to the lands they possess, to nurture the cattle which go upon the common, with some additions placed to such houses as are situate so near the Fen as to enable them to milk their cows upon the common in a fruitful season, and plenty of grass, which are adjusted in proportion to their various situations."



The foregoing calculation is taken from the average of the common-rights in two different parishes, viz. Lusby, and Revesby, the one being detached a great distance from the commons, the other much nearer, which makes a data for the whole of the towns; and if those two parishes' common-rights produce a given sum, and their two shares of land-tax amounts to, Lushby, £40.; Revesby, £237; all the parishes which have right upon the fens amounting to £3975. 15s. produces the above sum of £4173. 5s. per year, which gives the present value of the common-rights upon the said East and West fens, from 29,349 acres, is about 2s. 10d. per acre; when by the improvement from an inclosure the said 29,349 acres produce £26,243. per year, averages about 17s. 11d. per acre; which is the moderate average value; although there are certain lands taken in to defray the expence of draining the said West fen, let by auction for 34s. per acre; in the average about 1000 acres in farms.

The principal reason why those fens are so unprofitable in their present state, arises from the disorder in stocking; because human nature being in their various capacities anxious of property, some through avarice, or a wish to get rich at once, stock so largely as to injure themselves, and oppress the common; others, in the line of jobbing, put in great quantities of stock to sell again, which are altogether injurious to the fair commoner, who only stocks with what his farm produces. Because, suppose one man stocked a pasture of 29,349 acres, he would consider the different sorts of cattle to be depastured thereon, for each to thrive and yield their proportionable share of profit; but if 3000 men stock, they have different views of supposed interest; some increase their breed of sheep, beasts, horses, geese, &c. There are instances of a cottager renting £5. per year, having 1500 or 2000 breeding geese, which must injure his neighbour of £5. per year, who has got only a few sheep or a cow.

And as it appears, if the said commons were inclosed, would produce an yearly rent of £26,243. 5s. 8d.—All plough farms here are estimated to produce three years rent, £78,729. 17s. which increase of property would employ more poor, maintain more farmers, increase trade, and produce great quantities of grain, which now costs English money to import from foreign nations.

The principal proprietors have long had this improvement in agitation, particularly since so many inferior neighbouring commons have been embanked and inclosed to such great advantage ; but this being more extensive, and having large mortmain estates intermixed, and also a difference in the rights between the Soke of Bolingbroke and Holland Town, have hitherto protracted the proceeding."

Along the sea-coast of the hundred of Skirbeck, there are about 1000 acres of sea marsh beyond the bank, covered by spring tides, capable of being taken in to very great profit ; but not done, waiting for an act to inclose the fens, in order then to take in the marshes.

Wrangle has a common of 1500 acres belonging to itself ; and Leak, besides its right on East and West fens, has one also of 450. The rest of the parishes in the hundred have a right, as they assert, on both East and West fens.

Mr. Linton is of opinion, that these fens will never turn to any personal or public benefit, but by inclosure ; for though certain profits are made, yet such losses happen now and then as cut very deep indeed into the benefit.

Mr. Birtwhistle, who lives at Skirbeck, is much spoken of for stocking the East and West fens, chiefly the latter, with Scotch beasts. It was said here, that the Duke of Buccleugh taking many beasts as rent in kind, this person was a contractor for vast numbers, even to the number

of between 7 and 800, and even 1000, which he summered here, and then drove them into Norfolk to sell for turnips ; and it is said his father made much money by this practice.

There are about 300 acres of land in East fen, where cranberries grow in such abundance as to furnish a supply for several adjacent counties. The land is chiefly common, belonging to Wainfleet and Friskney. *Empetrum*, and several other mountain plants are found upon the cranberry ground, and in no other part of the fens. They are so plentiful, that one man has got nine score pecks in a season.

Sir Joseph Banks had the goodness to order a boat, and accompanied me into the heart of this fen, which in this wet season had the appearance of a chain of lakes, bordered by great crops of reed, *arundo phragmites*. It is in general from three to four feet deep in water, and in one place, a channel between two lakes, five to six feet. The bottom a blue clay, under a loose black mud, two to two and a half feet deep.

*Plants on the Peaty Bogs, &c.*

<i>Arundo phragmites.</i>	<i>Polygonum amphibium.</i>
——— <i>epigejos.</i>	<i>Myosotis scorpioides.</i>
<i>Potentilla anserina.</i>	<i>Juncus effusus.</i>
<i>Hydrocotely vulgaris.</i>	<i>Hypericum quadrangulum.</i>
<i>Mentha aquatica.</i>	<i>Epilobium hirsutum.</i>
<i>Ophioglossum vulgatum.</i>	<i>Lychnis flos cuculi.</i>
<i>Carex cæspitosa.</i>	<i>Selinum palustre.</i>
<i>Carduus palustris.</i>	<i>Lysimachia vulgaris.</i>
<i>Salix capræa.</i>	<i>Convolvulus sepium.</i>
<i>Iris pseudacorus.</i>	<i>Comarum palustre.</i>
<i>Hypnum rutabulum.</i>	<i>Acrostichum thelypteris.</i>
<i>Salix repens.</i>	<i>Bidens cernua.</i>
<i>Sonchus palustris.</i>	<i>Pedicularis palustris.</i>

<i>Sisymbrium amphibium.</i>	<i>Senecio Jacobæa.</i>
<i>Eriophorum polystachium.</i>	<i>Alisma plantago aquatica.</i>
<i>Eupatorium cannabinum.</i>	<i>Cineraria palustris.</i>
<i>Angelica sylvestris.</i>	<i>Teucrium scordium.</i>
<i>Lythrum salicaria.</i>	<i>Schoenus mariscus.</i>
<i>Caltha palustris.</i>	<i>Cicuta virosa.</i>
<i>Lotus corniculata.</i>	<i>Menyanthes trifolia.</i>
<i>Poa aquatica.</i>	<i>Myriophyllum verticillatum.</i>
<i>Rumex hydrolapathum.</i>	<i>Hydrocharis morsus ranae.</i>

In both East and Wildmore fens the poor horses, called Wildmore titts, get on the ice in winter, and are *screeved*; that is, their legs spreading outward, the wretched animals are split.

Upon the inclosure of this great and improveable tract of country, I had much conversation with Sir Joseph Banks, who I was very glad, but not surprised, to find, had the most liberal ideas upon the subject. No man sees clearer the vast advantages which would result from the measure to the country in general. No man can be more desirous that it should be effected; but knowing that there will arise difficulties, if the parties concerned do not concur in the design upon an equally liberal footing, without previous bargains, by leaving the whole to the decision of commissioners, he has desisted from coming forward himself, at a time when the scarcity of money might render the attempt questionable. He has collected with the utmost assiduity every document necessary for the measure; and is prepared for it in every respect. Nothing is wanting but an application to him from the parties concerned, upon so broad a basis as may shew the measure to be feasible, accompanied with declarations that the money can be procured. He permits me to assert this; and also, that the Dutchy Court of Lancaster will be friendly to the measure, on the assignment of one-six-

teenth in lieu of the rights of the Crown. He makes no conditions for himself personally, but will trust all to the commissioners. It is not possible for a man to be more liberal than this; situated and interested as he is, he may most justly expect that the applications should be made to him. The waste and disgraceful state in which so many acres remain, rests not, therefore, at his door. When I told him, that upon inquiring why these horrid fens were not drained and divided, it was said, *that Sir Joseph Banks was like a great bull at Revesby, ready with his horns to butt at any one that meddled*;—he replied, “Very true—Sir Joseph is that bull, to repulse those who would pretend to carry the measure upon wild and ill concerted plans in spite of him; but let them come forward in the right way, and with any prospect of success, and they shall find that Revesby bull a lamb.” Sincerely do I hope that this public declaration, in the sincerity of which I have not the smallest doubt, will have the proper effect; that meetings will be held for the purpose, with his concurrence; that the corporation of Boston, so deeply interested for the good of their town, will take the proper measures for being answerable for procuring the money. When such steps are taken with a general disposition, not to meet for making bargains or establishing claims, but to submit them to the decision of commissioners, the undertaking will be in train, and Sir Joseph Banks, thus properly applied to, will take the lead in a business of such importance, and give that powerful impulse to the measure which he alone can give.

Between Lincoln and Newark I passed very extensive waste commons, which produce nothing but gorse and rushes; and a little further, inclosures that wore no better face. In Stapleford also are many moors.

## CHAPTER XII.

## IMPROVEMENTS.

*Drainage.*

DEEPING Fen, which extends most of the 11 miles from that town to Spalding, is a very capital improvement by draining. Twenty years ago the lands sold for about £ 3. an acre ; some was then let at 7s. or 8s. an acre ; and a great deal was in such a state that nobody would rent it : now it is in general worth 20s. an acre, and sells at £ 20. an acre : 10,000 acres of it are taxable under commissioners, pay up to 20s. an acre ; but so low as 2s. ; average 4s. including poor-rates, and all tithe free. There are 5000 acres free land, but subject to poor-rates. The free land also sells from 15 to £ 20. an acre ; and more 3 or 4 years ago.

Through all the fens of Lincolnshire we hear much of the *soak*, by which expression is meant the subterranean water which is found at various depths, usually but a very few feet below the surface : this rises and sinks according to seasons, and is supposed, from its saline quality, to be the sea water filtered through a stratum of silt : Major Cartwright in Holland fen observes upon it,—

“ The substratum of *silt* seems to be very general in this neighbourhood, and not often, as I should suppose, at any very considerable depth. It seems to be a conductor of water in all directions ; so that when the main drains of the country are full of water, the *soak* must lie high in the land, even through the whole distances



between drain and drain. Hence it is obvious, that the lower the land is situated, the later must be its seed time ; and I presume that many parts of the Fen must be incapable of so complete a natural drainage in winter, as to bear the plough at that season. Possibly the use of engines in the form of windmills might be profitably extended beyond the limits hitherto contemplated. I have not heard of their being intended to do more than relieve the surface from water ; whereas they might perhaps be employed to advantage in keeping down the soak to a sufficient depth below the surface, to prevent the *chill*, and to forward the spring seed time.

“ But the inconvenience of this under-ground circulation of water in winter, is much compensated by its uses in spring and summer ; and I have reason to believe that the *salt*, with which, as already observed, the *silt*, as well as the top soil is impregnated, contributes much to the activity of the water’s summer circulation ; and particularly operates in the most advantageous manner in dry seasons ; when it raises moisture in this soil to a much higher level than on any other soil, not of a saline quality, would be the case. It was in the course of last summer that I first noticed the peculiar attraction of moisture from the ditches, to a much higher level above the surface of the water in the same, than I had been accustomed to observe in other soils. Just at the time as the cause of the phenomenon struck me, a circumstance presented itself which confirmed the opinion. In the face of a new cut ditch, where the moisture had in general been attracted to a *considerable height*, I perceived that in one particular spot, the attraction had raised it *much* nearer to the surface. Immediately prior to the cutting of this ditch, I had, in an experiment, dug in this spot to the depth of 2 feet or more, and having thrown back the earth into its place again, it now formed a loose porous mold, much

less compact than the soil adjoining. Soon after, in a field sown with barley, and in a spot more inclining to sand than the rest, there was a low pan, into which water had flowed by a small grip or gutter from an adjacent ditch, where I had a farther opportunity of observing how very powerfully the soil attracted moisture, and to what an uncommon height from the level of the adjacent water it was thereby raised. It was only a very small spot in the centre of the pan, where the fluid was seen in the form of *water*; but the surface of the land for many yards around was perfectly and visibly *wet*; at a level not less than twenty inches, as I should imagine, above the surface of that water. In some of the furrows, I remarked a white powder-like appearance, which upon examination proved to be salt, and was easily distinguished as such by the tongue.

“ It has been remarked of this district, although retaining its ancient name of *Fen*, that upon the whole, it is liable to suffer more in summer from *want of water*, than in winter from a superabundance; for any thing in the nature of a *flood*, to which the valleys in other parts of the kingdom are so much exposed, has been unknown in this neighbourhood, ever since the grand system of drainage took place. But I incline to think that the foregoing remark has been founded only in the *visible* want of water for the *cattle*, when, upon a drought, the great drains become very shallow, and the *soak*, or water retained in the earth, passes, in a great measure, off through the filtering stratum of silt; at which time we must dig deep to find the fluid in the form of *water*. But even in such seasons of drought, I conceive the earth, by means of its *saline quality*, to attract and retain so much of the fluid, in the form of *moisture*, as to be of the greatest use in refreshing and feeding the roots of corn. Hence the weighty crops of grain we get in very dry seasons, when

other soils through drought become comparatively barren. Hence also the importance of correcting every top soil of a stiff and too tenaceous clay, with silt enough to render it pervious to the moisture from below. A crop of barley in the late drouthy season, on the land above mentioned, which I estimate at 7 quarters an acre, seems to confirm this reasoning.

“ My potatoes also, and my cabbages, contrasted with my rape, may possibly throw farther light on the question. In 1793, and again in 1794, both potatoes and cabbages grew and flourished remarkably, notwithstanding *severe drought*; while my rape, in both seasons, failed very much. In 1793, it was sown *thrice*, and in the first week of September the field was like a mere fallow; except where the potatoes were, then in full luxuriance; never from the first setting having shewn the smallest check in their growth, or the least symptom of wanting moisture. The potatoes, deposited *under furrow*, and the cabbage plants, by means of their *long roots*, reached levels to which the moisture was powerfully attracted by the salt in the soil; the rape seed, sown on the surface of the fallowed land, could not be harrowed in deep enough to receive the same benefit; and possibly its oily quality may be a *repellent* of moisture, and so add to the grievance of a very dry season. Hence I am cautioned against *late sowing* of rape seed, and against working my fallows with defective implements, so as to promote the evaporation of their moisture for want of dispatch in this necessary operation. I know not how cabbages and potatoes have succeeded this year, and the last, in other parts of the country where there was *equal drought*, but *not a saline soil*; if they had equal drought, but did not flourish as mine did, the fact will corroborate my argument in respect to *attraction*; if they did stand as great droughts as mine did, and flourished equally well, it will be a

striking proof of the immense value of those plants in husbandry."

Matthew Allen of Brothertoft, before the inclosure and draining of Holland fen, paid 20s. rent for a cottage and croft. His stock on the fen was 400 sheep, 500 geese, 7 milch cows, 10 or 12 young horses, and 10 young beasts. Such a person, if ever one was heard of, must have been injured by an inclosure ; for never could be known a more perfect contrast between the rent and stock of a holding. He now rents about 50 acres of the inclosure at 25s. an acre; has a wife, five children, and two servants, and greatly prefers his present situation, not only for comfort, but profit also.

Mr. Hoyte of Osbornby, has made some drains that have laid several of his fields dry, at a considerable expence ; he has changed the course of the water in some instances ; and by means of irrigation, has converted his worst enemy into his best friend ; where necessary, he has made also hollow drains, with sides of stone and capped, and the cavity filled with small ones : by such means he has converted some boggy spots into sound meadow.

In that long reach of fen, which extends from Tattersal to Lincoln, a vast improvement by embanking and draining has been ten years effecting. The first act passed in 1787 or 1788 ; and, through a senseless opposition, an extent of a mile in breadth was left out, lest the waters should, in floods, be too much confined, and the other side of the river overflowed : better ideas, however, having taken place, a new act to take in to the river has passed. This is a vast work, which in the whole has drained, inclosed, and built, and cultivated, between 20 and 30 square miles of country (including the works now undertaking). Its produce before little, letting for not more than 1s. 6d. an acre ; now, from 11s. to 17s. an acre.

Mr. Chaplin had 300 acres of this, which were never

let for more than £10. a year; now he could let it at 11s. or 12s. per acre; probably more. What an improvement over a country 12 or 14 miles long, and from 2 to 3 broad!

It is subject to the tax of 1s. an acre to the Witham drainage; and not exceeding 1s. 6d. to its own; but this is not more than 1s. Land here now sells at £ 25. an acre. This vast work is effected by a moderate embankment, and the erection of windmills for throwing out the superfluous water. The best of these, which cost £ 1000. erecting, Mr. Chaplin of Blankney, who is a large proprietor here, and keeps 300 acres of fen in his own hands, as well as 400 of upland, had the goodness to shew me, and ordered to be set to work. The sails go seventy rounds, and it raises 60 tons of water every minute, when in full work. The bucket wheel in the mills of Cambridgeshire are perpendicular without the mill; this, which is called *dritch*, has it in a sloping direction, in an angle of about 40 degrees, and within the mill. It raises water 4 feet. Two men are necessary in winter, working night and day, at 10s. 6d. each a week, with coals for a fire; add the expence of repairs, grease, and all together will amount to £ 2. per cent. on the £ 1000. first cost. Mr. Eckard of Chelsea and Dover-street was the engineer. It drains 1900 acres. Two years ago the floods overtopped the banks, and it cleared the water out so quickly, that not a single year was lost. The management in cultivating this fen has been

1. Pare and burn for cole, which has been worth from 40s. to 60s. an acre. A few have seeded 3 quarters an acre.
2. Oats.
3. Oats; from 8 to 9 quarters an acre each.
4. Seeds for three years.
5. Pare and burn for cole; but as thin as possible; others after the seeds fallow for cole; and wheat has been taken

by others ; by some with good success. Mr. Hill, tenant to Mr. King, has had 5 quarters of wheat an acre ; having dibbled it ; and this year has a crop ; but though the ears are very long and full, yet it is not a great produce, being too thin. This gentleman informed me, that nothing would do here but paring and burning ; he has fallowed instead of it, but cannot get nearly so good layers without that operation. The soil in this fen is a light peat moor, 3 to 6 and more feet deep, upon a whitish silty clay, as described to me.

In the north part of the county, the drainage of the Angholm is another great work, extending from Bishop Bridge to the Humber, in a curved line ; but by an act passed about thirty years ago, was carried in a straight line through the level, for the purposes of draining and navigation. Before the draining, it was worth but from 1s. to 3s. 6d. per acre ; now it is from 10s. to 30s. Much of it arable, and much in grass.

The low lands that are taxed to the drainage amount to 17197 acres, the tax amounts to £ 2149. per annum, or 2s. 6d. an acre. It is now chiefly pasture and meadow ; but the *cars*, which were rough and rushy, have been pared and burned, and sowed with rape for sheep ; and then with oats for a crop or two ; and on the better parts some wheat, then laid to grass : there is not a great deal kept under the plough.

Mr. Thorpe at Kirton, has made some hollow drains filled with stone, to cut off some springs, done in a very effective manner ; but apparently more of them than necessary for the purpose. I saw the same thing on the fine farm of Mr. Moody at Riseholm.

About Normanby, Burton, &c. there are many lands that would be much improved by draining the springs ; but nothing yet done in it.

Revesby.—Sir Joseph Banks has made an experiment

here, founded upon Mr. Elkinton's reasoning ; and which he undertook as a trial, to convince him whether or not he had made himself master of Elkinton's mode of drainage, when he attended him as one of the committee of the Board of Agriculture.

Sir Joseph's house stands in a park situate on the root of those hills, which as they rise higher become the Wolds of Lincolnshire.

The great West fen is south of him about a mile distant ; and the high-water mark there is about 60 feet lower than the site of his house.

Behind the house the slope of the hill rises gradually, and the highest part of the park is about 80 feet above the house.

About 40 feet above the house a small spring had been long known to issue into the side of a pond ; but its produce was trifling, not being more than a pint in a minute ; so that although some unsuccessful attempts had been made to increase it, by digging in order to get a supply of water for the house, it had been totally abandoned by his father.

On this hill side, about the level of the spring, Sir Joseph commenced his operations in 1795 ; and concluding the whole hill side must contain water, he began to bore in various parts in order to examine.

He found the hill to consist of coarse Norfolk marl, from 11 to 13 feet thick ; and under that, every where of solid blue clay.

He deduced from thence, that all the rain which sinks into the hill, must descend down its slope upon the surface of the blue clay, working its way gradually through the permeable stratum above it, and standing in that permeable stratum at a higher or a lower level, according to the wetness or dryness of the season.

He found this reasoning justified by the state of the

water in his bore holes, all of which were carefully plugged, and frequently examined. The season was very dry ; and it rose in them to different heights, the surfaces of which made a curve, somewhat conformable to the slope of the hill, though not so much so as he expected.

He fixed upon a point about 37 feet above the level of his house, where the water stood within less than 4 feet of the surface ; and from thence he carried a line of bore holes along the side of the hill, gradually, but gently ascending.

Having examined the height at which the water stood in these bore holes, he began a trench, sinking it, in the first instance, 8 feet below the surface of the earth, which is 4 below the height to which the water then rose ; and he contrived the bottom of his trench in such a manner as generally to be about 6 feet below the surface of the earth, and never less than  $2\frac{1}{2}$  or 3 below that of the water in the bore holes, which were about 2 chains asunder.

At the bottom of this drain, which was covered as it was made, he put a brick channel, one brick across, and one or two on each side, as the ground was more or less firm, and he dug it in the whole about 26 chains long.

From the lowest end of this trench a channel is brought down the hill till it comes to the surface ; here the water is collected in a wooden spout, and falling into a little pit dug for the purpose, from the bottom of which it is also conducted away lower down, it is easy at any time to measure the produce of this artificial spring.

When I saw it, the season had been remarkably wet, which no doubt increased very materially the quantity of water yielded by it ; and it had been so lately finished, that no opportunity of measuring the quantity produced in a dry season had occurred.

It yielded 12 gallons in a minute, and formed a very respectable rill, which emptied itself into a fish pond about



By the annexed Map of the drainages in the south-east district of the county, united with the improvements on the Ancholm, and in Axholm, it will appear that there is not probably a county in the kingdom that has made equal exertions in this very important work of draining. The quantity of land thus added to the kingdom, has been great; fens of water, mud, wild fowl, frogs, and agues, have been converted to rich pasture and arable, worth from 20s. to 40s. an acre. Health improved, morals corrected, and the community enriched. These, when carried to such an extent, are great works, and reflect the highest credit on the good sense and energy of the proprietors. Without going back to very remote periods, there cannot have been less than 150,000 acres drained and improved, on an average, from 5s. an acre to 25s. ; or a rental created of £ 150,000. a year. But suppose it only £ 100,000. and that the profit has on an average been received during the period of thirty years ; the rental has in that time amounted to three millions, and the produce to near ten ; and when, with the views of a political arithmetician, we reflect on the circulation that has attended this creation of wealth through industry ; the number of people supported ; the consumption of manufactures ; the shipping employed ; the taxes levied by the state ; and all the classes of the community benefited ; the magnitude and importance of such works will be seen ; and the propriety well understood of giving all imaginable encouragement and facility to their execution. These are the results of that government, which so many living and fattening under its protection wish to exchange or hazard, for speculative legislation of a more popular cast. Early in the days of republican France decrees issued for draining marshes ; I do not ask, what progress has been made ? But I would demand, if any drainages equal to this have been executed in that kingdom during a century ? From Bourdeaux to

Bayonne, in one of the finest climates of Europe, nearly all is marsh. What Frenchman has been so actuated by the blessings of republican security, as to lay out one louis on that or any other marsh or bog? These undertakings prove the reliance of a people on the secure possession of what their industry creates; and had it not been for common-rights, all England would long ago have been cultivated and improved; no cause preserves our wastes in their present state, but the tenderness of government in touching private property. A farming traveller must examine this country with a cold heart, who does not pray for the continuance of a system of legislation which has tended so powerfully to adorn, improve, and cultivate the country, and to diffuse prosperity and happiness through the whole society.

## 2. *Paring and Burning.*

PRACTICED with great success in Deeping fen. Mr. Graves of Spalding sows coleseed on this operation, which he performs with a plough. He finds horses and ploughs, and puts out the labour, including a ploughing to turn in the ashes, at 7s. an acre; the cole is fed with sheep, and is worth £3. an acre, but selling price 40s. to 50s. Then oats 8 qrs. an acre, and has had 10 qrs.; then cole and oats again; and being laid down with 14 lb. white clover, and one peck of ray, the grass would let at 20s.; this is found a great and permanent improvement. And that this is a low estimate, appears from its keeping five sheep an acre from Ladyday till Michaelmas, and one and a half acre in winter. Where then is the supposed mischief of paring and burning?\*

\* Many objections have been made to this practice in the fens, particularly that it reduces the soil greatly, visible in the sinking of drained lands that have been pared; but it is remarked, that a

14 chains below. A little above the place where it first issues from the earth, the channel made to contain it had bent, owing to the additional quantity of water procured by lengthening the trench in the course of the last winter, and had formed a complete quaking bog, in the midst of firm dry land; the rushes which had already appeared, were matted with the grass, and capable of bearing a small animal; and the water, which issued from little holes, brought with it that ferrugineous matter which is often deposited by bog springs.

This Sir Joseph calls a synthetical bog; and says, he flatters himself, he shall become master of Mr. Elkinton's mode of drainage soon, as he had succeeded in a synthetical, as well as in an analytical experiment.

The slope of this hill for about three miles is in his possession, and he supposes, that if he was to make a trench for that length upon the surface of the blue clay, puddle the lower side of it, where any inequality in the surface of the blue clay rendered it necessary, and put a three feet brick arch in the bottom of his drain, he could, by taking the whole soakage of the hill, produce a river capable of turning a considerable mill, or of supplying many miles of navigable canal with sufficiency of water in the driest seasons.

Sir Joseph declared to me, that he never should have thought of this experiment, had it not been for the conversations he had with Elkinton; and he insisted that the whole merit of it should be placed to Elkinton's account: he is confident, he says, that his father, who resided in the country, and who spent some money in search of water at a high level near the spring mentioned before, would willingly have given a thousand pounds for the run of water he has now obtained. Indeed it is very unlikely that any gentleman of opulence, who has not a spring near him at a higher level than the site of his house, would bid less

money at market for such a spring, 37 feet above his level, and 37 chains only from his house, could it be obtained by purchase.

About Mavis, Enderby, Bolingbrook, &c. the wetness of the sides of the hills is lamentable: bogs are so numerous, that he is a desperate fox hunter, who ventures to ride here without being well acquainted with the ground. I have rarely seen a country that wants exertions in draining more than this. Many similar springy sides of hills are to be met with all the way to Ranby, and thence by Oxcomb to Louth.

Mr. Parkinson's table of the improvements in drainage, by acts in which he was a commissioner.

	Acres.	Improved value.	Old value	Improvement.
Tattershall embankment -	892	£. 838	£. 387	£. 450
Alnwick Fen -	1,097	703	54	648
The nine embanked fens to Lincoln	19,418	15,534	1,941	13,592
Holland Fen eleven towns -	22,000	25,300	3,600	21,700
	43,407	42,375	5,982	36,390

Upon the subsidence of drained fens Mr. Elmhurst remarks, that by draining, ploughing, and consolidating the particles, the lands are (18 inches) lower than they *appeared* to be, before they ever were ploughed. And that by paring, &c. they have been made *firmer*, and of a *more solid* texture, than they were before, and of course lower. So it will be very difficult for any one to *prove*, that *any of those lands* have been *really* reduced and lowered (18 inches) *entirely* by the *fatal* practice, and reprobated mode of burn-bating.

By the annexed Map of the drainages in the south-east district of the county, united with the improvements on the Ancholm, and in Axholm, it will appear that there is not probably a county in the kingdom that has made equal exertions in this very important work of draining. The quantity of land thus added to the kingdom, has been great; fens of water, mud, wild fowl, frogs, and agues, have been converted to rich pasture and arable, worth from 20s. to 40s. an acre. Health improved, morals corrected, and the community enriched. These, when carried to such an extent, are great works, and reflect the highest credit on the good sense and energy of the proprietors. Without going back to very remote periods, there cannot have been less than 150,000 acres drained and improved, on an average, from 5s. an acre to 25s. ; or a rental created of £ 150,000. a year. But suppose it only £ 100,000. and that the profit has on an average been received during the period of thirty years ; the rental has in that time amounted to three millions, and the produce to near ten ; and when, with the views of a political arithmetician, we reflect on the circulation that has attended this creation of wealth through industry ; the number of people supported ; the consumption of manufactures ; the shipping employed ; the taxes levied by the state ; and all the classes of the community benefited ; the magnitude and importance of such works will be seen ; and the propriety well understood of giving all imaginable encouragement and facility to their execution. These are the results of that government, which so many living and fattening under its protection wish to exchange or hazard, for speculative legislation of a more popular cast. Early in the days of republican France decrees issued for draining marshes ; I do not ask, what progress has been made ? But I would demand, if any drainages equal to this have been executed in that kingdom during a century ? From Bourdeaux to

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But little pared and burned in Holland fen.

A great field for this improvement in Lincolnshire, has been Lincoln heath ; in that long range of high country which extends from Stamford to the Humber, a vast number of Lordships have been inclosed in the last 30 years, by act of Parliament. In the tract above Grantham and Belton, I viewed some lands in the parishes of Louthorp, Spittlegate, Welby, Harrowby, &c. and found that the mode of first breaking up by paring and burning had been very general: landlords have usually restricted their tenants to do it but once ; but there have been some few exceptions, in which it has been executed twice. I found a prejudice against it, but the farmers were so strongly convinced that their profit depended on it, that it

series of ploughing and cropping stiffens, concentrates, and diminishes, the lighter kinds of fen soils, and that the stratum of black peat earth, which, on their first breaking up, was considerably deeper than the plough ran, has been, within the memory of the present occupiers, without any fresh paring and burning, so far reduced, that without taking more mould, or ploughing deeper than they formerly had been accustomed to do, they have not only passed the whole of the black peat stratum, but have ploughed up two or three inches of the clay beneath it : and if it be granted, which I think will scarcely be denied, that the surface of the adjacent depastured fen lands, from the decay of vegetables, dung, of animals, and the soil brought thither by the waters from the neighbouring high lands, has been continually though slowly, increasing, there will then appear other reasons for their present different level, than mere paring and burning. It is well known that earth is not to be dissipated by combustion ; it is more likely that this appearance proceeds in the first place from the light peaty earth of a fen soil being gradually consolidated by alternate cultivation and pasturage, so as to sink below the level it formerly preserved in its uncultivated state ; and in the next place, may it not proceed from the commons gradually rising higher by the accumulation of mud and soil deposited by the upland waters ?

A material objection to paring and burning is, that in very dry seasons, when the moisture of the earth is very low, the fire catches the soil below, and causes what is called *pitting*, making great unsightly holes to the bottom of the moor, which with great difficulty are extinguished. About thirteen years ago, a large common at Chatteris in the Isle of Ely, was thus burnt up, 16 or 18 inches deep, to the very gravel.

*MS. of the B.*

was not easy to find tenants who would hire at any fair rent, if they were debarred from a mode they thought so essential ; hence it has been complied with. They would not give, on a lease, more than 10s. for land that would otherwise let for 14s. if prevented paring ; and as long leases are very much sought for, a security that a landlord's estate should not be exhausted in a few years, and then thrown into his hands, there seemed to be no reason adequate to the refusal. Lord Brownlow ties them up to pare and burn but once ; to have one-fifth of the arable every year in turnips, and not to take more than two crops in succession of white corn, without a fallow for turnips, or of clover, &c. ; but they may pare for any crop, and take two in succession. Those who apprehend that this husbandry is dangerous, should secure themselves by the clauses of their leases ; the clause now recited does not seem sufficient to restrain a bad farmer, for by it he might burn for wheat, then take a crop of oats with clover ; plough up that for wheat, and follow it again with oats ; after which (to go no further) the land would be in a state not much for the credit of burning. The lands which were shewn to me as proofs of the bad effects of burning, conveyed no such conclusion ; they were stated by Mr. Abbot, Lord Brownlow's bailiff, as producing on an average 3 qrs. of barley and 4 of oats, if turnips were gained ; and this upon the rent of 9s. an acre, tithe free : crops fairly equal to the rent in any part of England, where burning was never heard of. Another circumstance against it was, that in some farms at Welby, rents which 17 years ago were at 9s. were sunk, in 1795, to 7s. on this account, in the report of the country, for there was no certainty of the fact. This is marvellous, that land should be burned mischievously so long ago ; that *bad times* should follow, when the effect must be well known, if ever it was ; and that rents should be



lowered, when prices were of a complexion that would not admit of any such effect rationally. Such are the facts I met with against the practice, in a ride taken professedly to convince me of its injurious tendency ; not by Lord Brownlow himself, who admits the practice ; but by his bailiff, an able and practical farmer.

At Leadenham, paring and burning the heath land at first breaking up was general, there being no other way of killing the sedge and other rubbish ; all for turnips, some few have done it twice, the second time after seeds that rested seven or eight years, but this is rare ; no objection here is urged against the practice, either by landlord or tenant, and no appearance of it having injured the land.

———— Chaplin, Esq. at Blankney, has improved a black hungry gravel, between the high lands and the fen, effectively. He grubbed the gorse, then pared and burned, and sowed turnips ; then took a crop of oats ; after this, turnips again, and oats a second time ; then turnips again, and rye with seeds, which laid two years ; broken up again for oats ; then turnips ; then oats and seeds again, which I viewed, worth 9s. or 10s. an acre. Here is a very great improvement made without any cultivation, that would not pay as it advanced. Upon the heath land it has also been much practiced here, and has not been attended, in Mr. Chaplin's ideas, with any ill effect ; though improperly cropping and running the land after it, has occasioned some pieces, intended to be kept in tillage, to be thrown back again to warren ; but not resulting from the burning, as is evident from others better managed, remaining good. Price per acre for paring, burning, and spreading the ashes, £ 1. 1s.

North of Lincoln, on the new inclosed heath, all broken up by paring and burning, but now debarred by landlords from being repeated.

In the cold rough clay land behind Gainsborough, when they break up grass; it is by paring and burning, and Mr. Dalton at Knaith has observed the husbandry, and thinks it right *on this soil*.

Paring and burning is very common on the Wolds, about Brocklesby, in taking up any old sheep-walk, or gorse cover; and some farmers will do it upon newer layers of ten or twelve years; and the best farmers approve of it when the natural bad grasses come after the sown ones wear out, and the surface is become hide-bound, mossy, and unproductive: price of the operation 25s. an acre. I inquired particularly for some fields, if any such there were, that had been ruined by this practice, but though many had been very ill managed, none could be found that were materially hurt. Many of the farms are extensive, and the homesteads very ill situated, so that without this practice they would not know how to manure the distant parts at all.

Mr. Lloyd at Belesby much against the practice; thinks it unnecessary, and that there are better ways of managing.

On the Wolds near Louth, much practiced, and will do it on land that has not been down above five or six years. A good way of performing the operation has been to make the heaps in exact rows in the middle of the lands, to plough close to them when burnt, and then to spread the ashes on the surface of the ploughed land, in order to keep the ashes above, and not below the furrow.

Mr. Kershaw of Driby breaks up sainfoin by paring and burning. Upon 30 acres of worn out and old sainfoin, run to rough grass, he did it at a considerable expence, for he was forced to burn it in large heaps; he sowed oats, and got as fine a crop as ever seen; then cole and turnips, which were not great, succeeded by wheat, which was a very fine crop; laid down with this wheat,

to white clover, trefoil, and ray grass, which turned out as fine as possible : before it was not worth more than 2s. to 5s. an acre ; now very fine : a capital and vast improvement, which it was impossible to have effected without paring and burning. In all this account I use his own expressions ; but I must add a word to the visionary enemies on mere theory to this admirable practice, to consider well the force of this instance, and indeed of hundreds I have given to the same purpose, before they determine to continue blindly to condemn a practice because some bad farmers will abuse it. Asking a party of farmers at Mr. Bourne's at Dalby, what was the greatest of improvements for poor land in this country ? *Oh ! that is easily answered : paring and burning, and sainfoin.*

Mr. Elmhurst near Horncastle, gave me the following account of his practice :

“ Upon old and common land, which has never been ploughed, of a strong or cold clayey sort, and full of large ant-hills, the which I have always managed in quite a different manner ; and the which I beg leave to mention and recommend. As I ever treat and manage the lands I *rent*, and my *own estate*, equally alike, I shall endeavour to be as concise as I possibly can, and therefore shall not particularize any, or describe any particular lordships, as the same sorts of lands, *i. e.* soil, I ever have used and managed in the very same manner, and by the same mode of husbandry.

“ So soon as I have got the plots, or parcels, staked out, and perhaps fenced, I let the piece I intend to break up first to men to pare, the which I *see* to have as well done as may be ; and generally about Lady-day that I begin ; then so soon as the sods are dry enough, I set in my burners, women, boys, and girls, with my ground-keeper to see that the work is well and *properly* done, (going myself at times to see that it is so,) though at the distance of

from 8 to 12 or 14 miles; (the which I *used* to do with pleasure; for it is *off* the master's eye that makes the sow fat!)—then so soon as a side, or screed is well burned, I set men on with digs (or large hoes) made on purpose to dig down, and chop in pieces, all and every ant-hill, great and small, before *any* of the ashes are spread; the which is easily and expeditiously done, if ever so hard; and much more expeditiously and easier for the men, than by *any other* means; when that is done, and levelled properly, (as it always is by the diggers as they proceed) I then have the ashes spread, as level as may be, over all the surface; when that is done, and the whole work completed, or that the weather suits by coming a seasonable rain, I set on a large, heavy, close-shod harrow, with two horses only; and have the ground run over once, twice, or three times, as it may require, which breaks the hill clods, already calcined by the sun, and mixes them and the ashes pretty well together; and when the time comes, and the season seems to suit, I set in my ploughs, and lightly *scratches* it over, as it were; for *no* pared and burned land should ever be ploughed *deep*; (nor should any kind of manure, whether common, or artificial, be *buried* deep;) and when the land is so ploughed, and as it is ploughed I sow my rape seed, and harrow it in; and *then* the whole is done, except *proper* gripping; for there scarcely *ever* comes *any* weeds; but I often hoe, or harrow, over *my* rape! where I think it *too thick*; and, if the season be not over contrary and unfavourable, I scarcely ever fail of getting a *very* good crop. And I will maintain it, even in the faces of any who seem to be such violent enemies to paring and burning, and who talk in such a glossed-up and theoretical style against it, that there is *no mode whatever* of treating and managing *such* land equal to this, either for quantity of *such proper* manure, cheapness to the occupier, so profitable, or so *good* for the land, as this

noble quantity of calcined manure. What these gentlemen theorists may either say or think of *this, my declaration* ; I neither know nor care ; for it is all a true and *practical* narrative, and a real fact ; and facts are stubborn things !

“ Then for *further* encouragement, I will proceed and shew in what manner I ever have managed (a *great* number of acres, and for many, very many years ;) *this* sort of land, the following years ; (the which I choose to do, in order, if possible, to confute some of their *settled* notions and prejudices against the whole practice of *paring* and *burning*, so strongly and repeatedly urged, and so much exploded. So soon as the land is *dry enough*, I set to ploughing it over a *little* deeper (and *clear*) than before, so as to keep the ashes near the surface ; (for if *any* manure is ploughed in deep, it is nearly lost ;) and then, when dry enough, I harrow it, so as to mix altogether as well as I can, or is reasonable ; that, perhaps, is in May ; then when the *season seems* to suit (from the middle of June to the first or second week in July), I set on to plough it very nicely (for Lincolnshire), laying all the lands equal in breadth, (4 yards, if not *very wet*, or less if *so*, or *too flat* ;) but I ever make it a rule, *never* to ridge up, or plough *any* land (so laid out) more than *one* turn, or cast upwards ; for it *never* can be drained *so well* if it is laid high ; neither is there any occasion for it, when the lands are all narrow and ploughed straight ; for then there wants nothing more than reasonable and nice gripping, after the furrows are drawn clean, with a proper plough (one horse) quite through the field ; so that, by this method, I get a *very* excellent crop of rape, the second year ; upon which (and *always* the same) I keep a great quantity of sheep-hogs, chiefly *folded*, the same as upon turnips, to prevent them from death, by *too* *luxurious* feeding ; and I have, by this mode, been so very fortu-

nate, (under providence) as not to lose a hog in several years together; (chance only excepted, such as overthrown or giddy;) even by such very rich food! Sometimes I feed wethers and drape ewes upon my *great* crops, and I give *them* larger pieces.

“ Now for the third year :

“ I always sow this sort of land, so managed, the third year also with rape; as I then can have the soils and ashes all thoroughly mixed and incorporated together; and the land laid proper for draining, &c. and to my liking, (before I grow *any* corn upon it) and in nice order for laying down; then, the next spring, so soon as the land is dry enough I plough it, and sow pat, or battle-dore barley; and *never* fails having a very great and yielding crop of excellent and *clean* corn; when that is got in, and the stubbles *well* eat off, I plough the land *well*, and sow wheat, in the same way as before spoke to, and harrow well in, drawing all the furrows as clean as may be, and grip neatly and properly; (as us Lincolnshire farmers know how!) then in the spring, and so *soon* as the land and wheat are in proper order, I sow a sufficient quantity of good sheep-grass seeds, such as white clover, (from 7lb. to 10lb. per acre) 3 or 4lb. of red ditto, 5 or 6lb. of rib grass, and from 2 to 4 *pecks* of good ray grass seed per acre; and when I *think* the land *requires it*, I run a *muzzled* harrow over the land, once in a place, before I sow the seeds, which make then, the seeds, fall and lay even on the surface; then, as the men proceed in sowing, I have it covered with the same harrows, or a bush-harrow (which may suit best), once in a place; and I never have failed having a *very good* crop of pasturage; and *sometimes* I have it mown the next year, if the land should be like to be *too tender* to bear stock. And I ever proceed in the management of all and every piece of land I have; and so in rotation over again, except that I *never*

pare and burn a *second* time ; nor is there *ever* an occasion, as the lands are both light wold land, or heavy, cold, and strong clays."

Mr. Loft of Marsh Chapel, broke up a walk of *shar* grass, which he cultivated thus :

- |                               |           |
|-------------------------------|-----------|
| 1. Pared and burned for cole. | 4. Oats.  |
| 2. Oats.                      | 5. Seeds. |
| 3. Cole.                      |           |

And he had a neighbour did the same, nearly contiguous, and on the same soil, but without burning ; and such was the difference of their success, that if his neighbour had no rent to pay but poor-rates, and Mr. Loft 20s. an acre, he would have had treble the advantage.

The Rev. Mr. Allington of Swinop, has made various observations on the effect of paring and burning ; and he is decidedly of opinion, that it is the most expeditious way of bringing any land that has long been under rabbits, or any spontaneous growth, into cultivation, by means of turnips. This operation secures that crop ; and when mischief ensues, he conceives it to be owing to a bad and exhausting course of crops. He admits that there are fields in a wretched state, which have been burned ; but, at the same time, not in a worse state than other fields not burned, but managed in relation to cropping equally ill. The first crop of turnips sometimes is not regular ; but well ploughed, this is not the case ; when it is a second crop, after one of corn, is usually better ; and he esteems a good crop of turnips so much the basis of every thing on these hills, that if a man fails of success afterwards, it is his own fault, generally by over-cropping. On the whole, he considers it, with proper management, as an unexceptionable practice here, and would permit any tenant to do it, with no other regulation than forbidding two successive crops of corn.

At Thurgundby, I viewed a crop of turnips, which

succeeded oats, upon a warren broken up without paring and burning. The tenant I was told came from Yorkshire, and is an enemy to that method; but these turnips shew manifest want of the influence of fire: they have failed for many acres together. Had it been pared, this crop would have been capital; and all succeeding, would have repaid the expence amply. The oats, I understand, were a middling crop.

At Stainton, rode through the beginning of some improvements by Mr. Otter (I regretted his absence), on the estate of Mr. Angerstein. It was with great pleasure I saw the effect of paring and burning gorse land, adjoining the warren of Thoresway, which had produced, even in this very wet season, so unfavourable to the operation, a fine crop of turnips. I was with my horse's hind legs in gorse, and his fore ones in turnips, worth £ 3. an acre; formed like enchantment in the short space of four months; and yet visionaries remain, who will plead against so admirable a mode of converting a desert to cultivation! By no other means upon earth could this have been effected.

Mr. Ellison at Sudbrook, has practiced this husbandry largely; and one instance I saw of its effect well deserves noting:—he has a crop of rape all pared and burned for; but from one part the ashes taken off, on account of an intended water, which was to have been cut through the land; where the ashes were spread as burned, the crop is most luxuriant indeed; worth in this dear year from £ 4. to £ 5. an acre; where the ashes were taken away, it is very mean, not worth more than 10s. an acre; except in a part near the hedge, where it is much better, probably owing to cattle and sheep having laid there for shelter; but this shews, that paring (this was done an inch deep) and burning does not exhaust the fertility lodged in a soil, from various circumstances, for this part of the crop,



though by no means equal to the best, is trebly better than the worst part. Whenever such circumstances occur they should be noted, whether for or against a practice; as it is only from a great variety of facts that the merit or deficiency of any husbandry can be ascertained.

Mr. Ellison never breaks up any sort of grass land but in this method, and has every reason imaginable to be well satisfied with it; but it must be old enough to admit burning, which will not be less than ten or twelve years.

1. Turnips, very good, winter 8 hogs an acre.

2. Barley, 4 quarters.

3. Turnips, as before.

4. Barley, 4 quarters or 4½.

5. 6. 7. or 8. or as it may be, seeds, white clover 2½ lb.; 4 lb. cow grass; 3 lb. rib grass; and 4 bushels hay seeds, clean. This on sandy land; but on clay land, add another sack of hay seeds. They will summer 4 ewes and lambs the first year, from Lady-day to near Michaelmas.

Much heath land broken up by paring and burning at Skellington, Gunby, North Witham, Stainby, &c. and it has succeeded very well: but they have done it only once.

#### *General Result.*

1. It appears from these facts, that upon the various soils mentioned, this practice has succeeded to such a degree, as to justify the warmest approbation of the husbandry in the county of Lincoln.

2. That it has in several cases been attended with a general good effect, even with an incorrect course of crops.

3. That no instance has occurred in this examination, where land has been materially injured.

4. That where it has been attended with an ill effect, it has evidently arisen from injudicious management.

5. That by no other method can waste lands be so speedily, effectually, and profitably improved.

6. That the benefit results from the ashes ; as if they are removed, the crops suffer greatly.

7. That the fire has not the effect of dissipating or destroying the fertility resulting from previous manuring ; as the crop, after the operation, is proportioned to such previous fertility from manures.

### SECT.—3. *Manuring.*

#### *Fish.*

STICKLEBACKS in the East and West fens so numerous, that a man has made 4s. a day by selling them at a halfpenny a bushel. They come from the sea into Boston haven also, and the use of them, whenever to be had, immensely beneficial : they are the most powerful of all manures. Mr. Cartwright has found them to exceed whale refuse. It is a whimsical fact, that the farmers of Holland Fen, and also to the east of Boston, reject the use of pigeon dung, having tried it ; and they now sell it to the heath farmers beyond Sleaford. This is singular. Boston haven muddy silt has been tried ; Mr. C. has had 1000 loads ; upon the first application for rape, it being laid on raw, it did not appear to have any effect, or rather a bad one, upon that crop ; nor was there any difference in the succeeding oats and clover, and other crops.

It is a circumstance that ought to be noted, as a warning in case of future drainages, that manure brought from Boston on the Witham navigation pays 1s. 6d. a ton, from a mere omission in the act of Parliament ; and it is the same whether carried 1 mile or 36.

*Lime.*

Lime has been used in small quantities about Folkingham ; they burn at the expence of 14s. to 15s. a chaldron ; lay on  $2\frac{1}{2}$  per acre for turnips, and the effect does not shew itself in the turnips or barley ; but the seeds are the better for it. About Belton this manure has been used, limestone being plentiful ; they lay 2 chaldrons an acre, and with good effect, on sand ; not on clay. But it will not bring turnips on the heath land.

Mr. Goulton tried lime, limestone, and marl, on pieces contiguous ; but there was no difference at all.

Mr. Graburn covered limestone land with limestone, but saw no effect from it :—the soil hungry sandy land.

Mr. Bourne of Dalby has limed, but does not find it beneficial enough to induce him to do much of it. Mr. Kershaw of Driby, has laid 3 chaldron an acre for turnips, but has not found it beneficial to that crop, unless mixed with earth ; but for corn and seeds it does good, though the soil is on chalk. Considering the improbability that lime should be beneficial on a thin soil on chalk, I made particular inquiries into this practice ; several farmers confirmed the account. Perhaps the loam is deep ; perhaps there might be on the surface of some fields an accidental, rather than an inherent quality, that gave the effect ; the expence 30s. an acre. It is but feebly prosecuted ; not one acre in a thousand. Mr. Bourne of Haugh has observed, that when both dung and lime are laid on the same spot, the effect is considerable ; the dung has then a greater effect than when laid on alone. This should seem to intimate, that the operation was by assisting putrefaction, as all the dung on every part of the Wolds is carried long from the yard.

At Claypool, &c. they manure with lime from Newark, 8 or 10 quarters an acre, at 2s. 6d. to 3s. a quarter.

It does more good for the seeds on arable land than for the corn. And upon the red sands at Marston it has had the effect of improving them for barley much.

Mr. Walker of Woolsthorpe, limes on a large scale ; he last year used 800 quarters ; lays generally 12 quarters an acre, at 4s. a quarter, and 20 quarters an acre over 20 acres. It is of little or no benefit to his turnips, but of much to both corn and seeds ; the soil flat red sand, much improved by draining.

Mr. Clough of Gayton, near Louth, limes here, and at Tathwell on loamy lands, that are the farthest from the chalk, which is under all the country.

At Tathwell, Mr. Hyde spreads  $3\frac{1}{2}$  to 4 chaldron per acre, of 32 bushels, at 13s. a chaldron ; lasts four years, and does much good for seeds and clover, and sometimes for corn ; but none to turnips. Mr. Pearson tried marl, but did no good.

#### *Rape Cake.*

Mr. Bunby of Temple Brewer, on Lincoln Heath, manures largely with rape cake in powder, which he brings from Gainsborough ; the success great.

#### *Marl.*

Mr. Dalton at Knaith, has manured his sand there with blue marl ; 60 four-horse loads an acre, which is attended with a very great improvement.

Mr. Clough of Gayton near Louth, has a small marl pit on his farm, from which he made an experiment, by marling a part of a field for turnips, and dunging the rest ; he carried about 20 loads of it, does not know exactly how many per acre ; the effect was equal to that of the dung. At Kelton they have laid it on seeds, and left it some time before ploughing, and it has answered well for 12 years ; but it may easily be supposed upon what scale

with men, who none of them have leases. Mr. Clough's is a white clay marl.

In the vicinity of Revesby there is a very commendable use made of white, blue, and red marl. Mr. Cra-craft at West Keal, has done most of the sandy fields of his farm. He lays 40 large loads an acre; and is forced to pay 1s. a load for permission to dig it in a neighbour's ground. He spreads it on a sand, which is said to have been infertile before, but highly improved by this manure; before, the turnips ran to *fingers and toes*, and were rarely worth more than 10s. or 12s. an acre; but now, that distemper disappears as soon as the marl gets mixed with the soil, and the crops are worth £3. or £4. an acre; barley used to produce about 2 quarters an acre; now 5 or 6. He finds the blue marl the best, and next the white, which however is better than the blue for the red loamy sands. The red is much the worst. Much of his land was a fox cover of gorse; the rent 4s. or 5s.; now it would let from 14s. to 20s. Before he marled, dung was of little worth on the sand; but since, the effect is very great. He has tried lime on land that had been marled, and with effect.

Mr. Parkinson of Asgarby, steward to Sir Joseph Banks, has also marled a sandy farm largely, and with very great effect; he spreads 40 loads an acre. He shewed me a field of 36 acres under turnips, a small part of which, by a mistake of his men, was not marled; and the difference in the turnips is prodigious; where the manure was spread, a very fine crop; but in the spot not marled, they had almost entirely failed, and the land was covered with weeds.—I have rarely seen a difference in crop more striking. He has 6 or 7 quarters an acre of barley, which succeed turnips on marled land.

Mr. Elmhurst has practiced marling for 35 years with great success.

At Kelston, adjoining South Elkington, the farmers have marled more than in any other part of the country ; and no where has the effect been greater ; their turnips before were all fingers and toes ; but since have been very fine, and free from that distemper.

*Bones.*

Mr. Sutton at Alkborough, manured with bones from Sheffield at £. 5. an acre, 60 bushels ; the first year 6 bushels of wheat more for them ; the next it was sown with beans ; got a quarter of crop more ; this year fallow, and the ketlocks there vastly more luxuriant ; now manures next part of it with dung, and expects the boned land will equal it.

Mr. Graburn at Barton collects bones at 6d. a bushel, unbroken ; breaks them with two cylinders of cast iron, with teeth that lock into each other ; lays on 25 strikes an acre, and has done 50 acres this year ; yet the turnips this year not good ; but on all other occasions the success remarkable, so that he can see to an inch where laid five years ago ; no manure equal to them. Has tried whale blubber, and the effect great, but did not answer the expence. Has mixed two strikes of ashes with one of pigeon manure, and spreads 50 strikes an acre ; the effect is great ; it is sure to secure a good crop of turnips, as good as 8 loads of yard dung, a ton each. Soot upon sainfoin Mr. Graburn has tried 30 bushels, at 9d. an acre, with good success ; and finds that yard manure answers well on it. Also upon seeds, and did perfectly.

Five years ago he manured with 30 strikes an acre of bones, and a part contiguous with 8 loads yard manure, sown with turnips ; which after the bones, were much better than any of the rest. On the second year of the seeds, covered the dunged part with yard manure a second time ; and two years after, a third time with yard ma-

plough, where much is lost. He ploughs first, and then spreads the dung, which he thinks answers better. Upon land not very dry, I should suppose this could only be done in a frost.

He observes invariably, that where dung is carted for turnips to the land long before sowing, so as to give time for mixing with the soil by the plough, the crop much exceeds that which is spread before the last ploughing only.

*Long and short Dung.*

Upon poor, thin, gorse, wold land, Mr. Goulton has remarked, that upon a piece of turnips, where manured with long dung fresh from the yard, the crop is not nearly so good as where manured with short dung, made the year before: the difference striking; nor is the corn so good sown after those turnips.

The best farmers at Wintringham are of opinion, that laying yard dung on heaps, is very bad; much better to cart it at once to the land. And Mr. Crust remarked, that he has observed, that those who make heaps, and consequently rot it much, never have such a return from their dung as they would by a different management.

Mr. Lloyd is much against hilling of manure, always carrying it *long* from the yard; has made repeated observations on the comparison, and is decided in the result. He remarked also to me, on shewing his farm yard, that in his opinion, a yard should always be on a descent; for if the straw lies wet, it will not rot; on a descent, it rots as well again: not that the urine should be lost, there may be a reservoir to catch it; his runs to a small pond, which is emptied often on that account. Soap suds he finds an excellent manure for fruit trees, making them shoot in a manner they never did before. His ashes he is careful to save dry, and finds them to be, by that means, a

much better manure : this is well known elsewhere ; but it is not common in Lincolnshire.

Mr. Clough leads the dung directly from the yard ; never hills it, which is utterly disapproved of. No standing sheep folds to make dung.

*Composts.*

Mr. Graburn has mixed earth and dung ; and some others have done the same ; but from whatever he has observed, could never see that it answered at all.

*Burnt Straw.*

The most singular practice which I ever met with in manuring, subsists on the Wolds, it is that of spreading dry straw on the land, and burning it. At Lord Yarborough's I first heard of this custom. His Lordship's tenant, Mr. Richardson, a very good and intelligent farmer, gave me the account, having long practiced it with success. The quantity is about 5 tons an acre. At Great Lumber he straw-burnt a piece in the middle of a field preparing for turnips, and on each side of it manured with 10 loads an acre of yard dung, and the burned part was visibly superior in the crop. In another piece the same comparative trial was made in 1796, for turnips, which crop was much the best on the burnt part ; and now, in 1797, the barley is equally superior. On another farm he had at Wold Newton he did it for turnips, then barley, and laid with sainfoin ; and the burnt straw was better in all those crops than yard dung. Burning gorse in this manner returns great crops, but the expence is too high. He is clearly of opinion, that it is the warmth from the fire that has the effect, and not the ashes ; for the quantity is nothing, and would blow away at one blast. It is proper to observe, that they do not value straw used in feeding cattle, at more than 4s. or 5s. a ton.



Mr. Mallis of Lumber, is of the same opinion, and thinks 4 ton is enough ; never knew that quantity fail for turnips.

This straw-burning husbandry I found again at Belesby : Mr. Lloyd, who, I should observe, is an excellent farmer, thinks that it takes six ton per acre, which will last longer in its effect, and beat the dung which that straw would make ; and in general lasts longer than common dunging. Keeping much cattle, he cannot practice it, but highly approves it.

In discourse at Horncastle ordinary, on burning straw, the practice was much reprobated ; yet an instance was produced, that seemed to make in favour of it. Mr. Elmhurst of Hazlethorpe burnt 12 acres of *cole-seed* straw on eight acres of the twelve, and the effect was very great, and seen even for 20 years ; he sowed wheat on it, 4 bushels an acre, and had 5 qrs. ; the 4 acres upon which nothing was burnt much the better land, yet the crops on the burnt part were by that made equal to the rest. But in another similar experiment for turnips, Mr. Rancliff observed the result, and the effect, though good, lasted only for one crop. Mr. Kirkham, who was in company, gave it as his opinion, that as cattle would not eat stubble, it might be beneficial to collect and stack that, and before turnip-sowing burn it.

The Rev. Mr. Allington of Swinop, has cut and carried gorse, and spread it on other land, and burnt it in May for a manuring for turnips ; he has done it twice, and it answered very well ; but of course it is to be noted, that this is done only when it cannot be sold for fagots, which sell at 8s. a hundred, so that the expence would be £ 4. an acre, as 1000 are produced per acre, and he burnt the produce of one acre upon another : the effect was great in the turnips ; the barley was better for it ; but he has not attended to it in the seeds, because hard stocked

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with sheep. He has burnt on the land for turnips, the long straw dung from the surface of the farm yard, and has had better turnips there, than where the dung was laid. This has been the case in two experiments he has made.

About Tathwell there is no burning straw upon land; Mr. Clough, Mr. Hyde, and Mr. Pearson scouted the idea of such a thing being common. It has however been here tried; for Mr. Oldham of Elkington, did it after ploughing for turnips, with long straw *from the yard*, and he succeeded well for the most part.

#### *Oil-cake Feeding.*

Mr. Ellison at Sudbrook fattens many beasts every year on oil cake, and finds the dung they make so rich, that by mixing it with straw dung, the whole is made good manure. His bailiff carts it out at Christmas, and in April, on to a hill, where it remains till the following autumn, if dry, to spread it on seeds; and if the autumn is wet, to cart it in frosts. While in the hill, turns once. He has tried carting it from the stalls directly to the field, but finds it a bad way, except for strong clay land, upon which it does very well; even for clay he would hill it, if for seeds. Hilling loses much in quantity, but adds greatly, the bailiff thinks, in quality; he puts 15 or 16 loads (three horses) per acre.

#### REMARKS.

One considerable benefit of examining the agriculture of any district on the spot, is the opportunity it affords of gleaning carefully in conversation. Many able farmers make experiments without minuting them on paper. If they were not drawn forth sometimes, by conversing on very different subjects, the result would die with the men who make them. But such circumstances are too valuable to be lost. What an immense mass of information

would be the result, if all such trials and remarks were collected from one end of the kingdom to the other. Experimental certainty would be the result, the cause of all apparent contradictions would be cleared up, and one harmonious system extracted from what at present seems confusion. An effect that never can flow from dissertations ; it can arise from nothing but multiplied facts.

#### SECT.—4. *Embanking.*

SINCE 1630, ten thousand acres have been saved from the sea, in the parish of Long Sutton, and seven thousand acres more might now be taken in by altering the channel of the river.

Holland Fen is a country that absolutely exists but by the security of its banks ; they are under commissioners, and very well attended to.

Upon taking in new tracts from the sea by embankment, it is always an object of consequence to know what should be done with the land. There is a new tract taken in by Act of Parliament at Wintringham, and some failures of crops makes it an interesting object. The second year after excluding the sea, they ploughed and sowed beans ; but the crop so bad, being in some places for acres together absolutely destroyed, that the management is plainly bad. The farmers, Mr. Peacock and Mr. Johnson, attributed it to the salt being too fresh and strong, and probably they are right ; however, the spots in the field which were a little dry from inequality of surface, had beans, though bad, but the flat spaces none. From observations made in other places, I am inclined to think that the land should be pastured for three years after excluding the sea, after which, ploughing will succeed without hazard.

At Humberstone there is a large piece taken in from

the sea by a low bank, which is well sloped to the sea, but too steep to the land, so that if the sea topped it, the bank must break. In these works it is always necessary to provide against high tides, that in case of such rising above the bank, and consequently flowing over it, the bank itself may remain undamaged ; which if steep to the land, cannot be the case, it must give way. The marsh taken in is not yet ploughed ; indeed it should always remain some years, to prepare it for ploughing.

Great tracts of valuable land remain yet to be taken in from the sea about North Somercots, and other places on that coast ; but I do not find that any experiments have been made in Sir Hyde Page's method, of making hedges of gorse fascines, and leaving the sand to accumulate of itself into a bank. Mentioning this to Mr. Neve, he informed me, that he had observed at least a hundred times, that if a gorse bush, or any other impediment was by accident met with by the sea, it was sure to form a hillock of sand. The extent of sand, dry at low water, on this coast is very great ; the difference between high and low water mark extending even to two miles.

In the reparation of the banks which secure the marsh land from the sea, the frontage towns are at the expence ; but in case of such a breach as renders a new bank necessary, the expence is assessed according to the highest tides ever known, by level over all the country below such level of high water, under the direction of the commissioners of sewers ; the distance from the sea subject to drainage, will therefore vary according to the level of the country.

An Act of Parliament passed in 1792, for embanking and draining certain salt marshes and low lands in Spalding, Moulton, Whaplode, Holbeach, and Gedney, containing in all about 5339 acres.

South Holland, grossly estimated at 100,000 acres

within the old sea-dike bank, has long been an object of embankment. Ravenbank, the origin of which is quite unknown, appears to have been the third which had been formed for securing a small part of this tract from the sea, leading from Cowbit to Tidd St. Mary's. About six miles nearer to the sea is another bank, called the Old Sea-dike bank, which is unquestionably a Roman work. A very curious circumstance is, that a fifth bank, called the New Sea-dike bank, two miles nearer than the Roman, remains, but it is utterly unknown when or by whom it was made. The new bank mentioned above, takes in about two miles more in breadth. In taking the levels for making the new drain, it was found that the surface of the country, on coming to the Roman bank, suddenly rose six feet, being six feet higher on the sea side than on the land side, and then continues on that higher level, being the depth of warp, or silt, deposited by the sea since that bank was made. The estimated expence of the drain, £ 17,985. 8s. 6d. Sir Joseph Banks (from whom I receive this intelligence) has made this note on the back of Dugdale's map, in which no trace of the new sea-dike bank appears: "Dugdale's History of Embankment and Draining was published in 1662, hence we may conclude, that the old sea-dike bank was then the outermost boundary of the inclosed marshes; it appears by Hayward's map, published by Badeslade, that it was also so in 1605; notwithstanding the new sea-dike is said by Mr. Maxwell to have been made about 1640." The embankment in consequence of the act of 1792, is nearly completed, and will prove an excellent work to the public, as well as to the proprietors. The drainage of South Holland, 100,000 acres, is in its progress, and will also prove a work of immense consequence; and it deserves noting, that this business goes forward at present, because

it is not effected by borrowing money on the credit of a tax, but the capital levied on the proprietors, who have now paid two instalments of 10s. an acre each.

An Act passed in 1794, for improving the outfall of the river Welland; and better draining the low grounds, and discharging their waters into the sea. The plan of this undertaking is to cut an immense canal from the reservoir below Spalding, capable of carrying the whole waters of the river Welland, and issuing them into the Witham below Boston. It is expected that the consequence of this will be, not only the drainage of Deeping fen, and all the adjoining lands, as well as those in Kirton wapentake, through the middle of which the canal is intended to pass, but also that the present bed of the river Welland, and of the Fossdike wash, will shortly be converted into marsh land of the richest quality, there being a great disposition to warp up in that river; and so fully have the undertakers been convinced that this would be the case, that they have provided in the Act, for making a turnpike road across Fossdike wash, which they conclude will become perfectly dry. But in consequence of the scarcity of money arising from the war, they have not been able to raise the money; but it is hoped that the return of peace will remove this obstacle, and set this great work in full action.

The first navigable canal that was made in England, is in all probability that which was made from Lincoln to Torksey; it is evidently a part of the Cardike, an immense Roman work, which served to prevent the living waters from running down upon the fens, and skirting the whole of them from Peterborough to Lincoln, afforded a navigation of the utmost consequence to this fertile country. That the Fossdike was a Roman work is fully proved by the discovery of a figure of Mercury, of Roman work-

manship, with a Latin inscription on its base, a figure of which is given in Mr. Gough's edition of Camden's *Britannia*; it was dug out of the mud below its present bottom. It is more than probable that that half of the present Sleaford navigation, reaching to the river Witham, was the second; the stream of Kyme-eau, the water which feeds the navigation, in all probability had its issue at Bickerhaven, near Donnington, an estuary, the banks of which are still remaining. The Earl of Angos, of whose navigable canal Dugdale gives an account in his work on *Embanking and Draining*, in all likelihood changed its course from its ancient one to its present issue, into the Witham near Dogdike.

The embankments which have been carried on are, upon the whole, very considerable; no country from its relative situation wanted them more, nor does any other possess them of equal extent; they are so connected with the great object of Parliamentary drainages, that wherever one is found, the other is implied; an idea may be therefore formed of embankments, by inspecting the drainage map.

#### SECT. 5.—*Watering.*

THE first irrigation I heard of in the county, was at Osbornby, by Mr. Hoyte, the lordship being inclosed by Act of Parliament in 1796, that very spirited improver took advantage of the capability of some of the lands to be irrigated, and advised the commissioners to award a power of taking water from a catch-water drain that was necessarily made, and offered to take for his own allotment, some lands reckoned of an inferior quality, because he perceived they would admit of this improvement. Last winter he set to work, and built sluices, formed carrier

trenches and drains ; and thus watered 50 acres, which was performed at an expence of about £ 50. He has of course mown but once ; the effect such as to prove the magnitude of the advantage, which would have been greater had he been able to have effected a private exchange with a neighbour. And thus this first of all improvements is introduced. The regular stream at the bottom affords water all the year, except in very dry seasons ; and the catch-water drain runs all winter, taking the shoot from an extensive range of hills, and bringing in floods much of the finer and richer particles, the washings of those hills, the soil of which is very good. In working the meadows, Mr. Hoyte observed, and effected by the cuts, that the water should always be active, never resting ; watered three or four days, and then shifted alternately. He watered some sedgy pieces, whenever he could, in frosts, as a means of destroying that weed ; it did much that way the first season, and he expects in another to destroy more. On this worst land white clover was brought up, which never appeared there before ; the soil a loamy clay with gravel at 3 or 3½ feet deep ; watered till the latter end of March ; turned in ewes and lambs the first week in April, and kept till the middle of May ; fed thus 35 acres ; five ewes and their lambs per acre, a feeding worth 6*d.* a head at least, the advantage of which was great. Turnips were destroyed, seeds backward, so that this resource was great, and amounted at this first spring to 15*s.* an acre. After feeding, watered directly for a week ; and then, in 8 weeks, being delayed by bad weather, mowed 2 tons an acre, on land, which never produced much more than a ton on an average : here was, therefore, near a ton of hay, and 15*s.* spring feed gained by water ; the after-grass much the same. Mr. Hoyte observes, that by thus keeping such a stock of ewes, the grasses of his farm are so favoured as to be a great reservation ; and the additional



produce of hay is so much addition to the manure made on the farm, which implies a constantly accumulating improvement of the other lands. The increasing quantity of live stock thus secured, must increase the heart and vigour of the whole farm. I viewed these works with pleasure, they are well planned; and great attention paid to catching every drop of water that can possibly be got; no winter runs are neglected; and upon slopes that were laid down in ridge and furrow, the carriers are well levelled, backing the angles, to lead from the crown of one ridge to the crown of the next. Such exertions can scarcely fail to find imitators in a country abounding with streams that are perennial.

The river which rises at Binbrook, Stainton, &c. flows through those parishes, and Irford, Swinop, Thurgunby, Hackliff, Barnaby, Le Beck, Briggsley, and Wayth, to Tetney and the sea, has on its banks a range of low ground, highly capable of watering at a very small expence; but not one acre done; a neglect that merits the severest condemnation, in a country so full of sheep, and often so distressed for spring food.

#### SECT. 6.—*Warping.*

THE husbandry, which I am about to describe under this title, is one of the most singular improvements I have any where met with; and far exceeding any other that has been heard of.

The water of the tides that come up the Trent, Ouse, Dun, and other rivers, which empty themselves into the great estuary of the Humber, is muddy to an excess; in-somuch, that in summer if a cylindrical glass 12 or 15 inches long be filled with it, it will presently deposit an inch, and sometimes more, of what is called warp. Where it comes from, is a dispute: the Humber, at its mouth, is clear water; and no floods in the countries

washed by the warp rivers bring it ; but on the contrary, do much mischief by spoiling the warp. In the very driest seasons, and longest droughts, it is best and most plentiful. The improvement is perfectly simple, and consists in nothing more than letting in the tide at high water. to deposit the warp, and permitting it to run off again as the tide falls ; this is the aim and effect. But to render it efficacious, the water must be at command, to keep it out and let it in at pleasure ; so that there must not only be a cut or canal made to join the river, but a sluice at the mouth to open or shut, as wanted ; and that the water may be of a proper depth on the land to be warped, and also prevented flowing over contiguous lands, whether cultivated or not, banks are raised around the fields to be warped, from 3 or 4 to 6 or 7 feet high, according to circumstances. Thus, if the tract is large, the canal which takes the water, and which, as in irrigation, might be called the grand *carrier*, may be made several miles long ; it has been tried as far as 4, so as to warp the lands on each side the whole way ; and lateral cuts made in any direction for the same purpose ; observing, however, that the effect lessens as you recede from the river ; that is, it demands longer time to deposit warp enough.

But the effect is very different from that of irrigation ; for it is not the water that works the effect, but the mud, so that in floods the business ceases, as also in winter ; and it is not to manure the soil, but to create it. What the land is, intended to be warped, is not of the smallest consequence ; a bog, clay, sand, peat, or a barn floor ; all one ; as the warp raises it in one summer from 6 to 16 inches thick ; and in hollows, or low places, 2, 3, or 4 feet, so as to leave the whole piece level. Thus a soil of any depth you please is formed, which consists of mud of a vast fertility, though containing not *much* besides sand ; but a sand unique. Mr. Dalton of Knaith, sent some to

an eminent chemist; whose report was, that it contains mucilage, and a very minute portion of saline matter; a considerable one of calcareous earth; the residue is mica and sand; the latter in far the largest quantity; both in very fine particles. Here is no mention of any thing argillaceous; but from examining in the fields much warp, I am clear there must be clay in some, from its caking in small clods, and from its cleansing cloth of grease almost like fuller's earth. A considerable warp farmer told me, that the stiffer warp was the best; but in general it has the appearance of sand, and all glitters with the micaceous particles. So much, in general, as to the effect: the culture, crops, &c. are circumstances that will best appear, with others, in the following notes taken on the spot.

The first warping works which I viewed were at Morton Ferry, where Mr. Harrisson, who shewed me them, has a large concern in a very great undertaking, no less than to warp 4260 acres of commons, by means of an act of inclosure and drainage. They are attempting to warp 400 acres in one piece, which is to be sold to pay the expence of doing all the rest, and they have been offered 30s. an acre rent for it, when finished; a double sluice is erected to take the water from the Trent, which cost £ 1200.; and a double canal, cut under the idea that the water should come in by one, and return by another; this apparently has created a great expence. They have used 15 tides over 200 acres, which has raised about 6 inches of warp in some places, but not uniform: and the opinion of the best informed persons is, that they must divide it into 50 aced pieces, and do one at a time. All this may be easily corrected, and the improvement will be amazingly great. The common is worth nothing as it has been hitherto fed.



A  
*Sketch of*  
**The Warping of**  
**MORTON CARR**  
 in the County of  
**LINCOLN.**  
 1796.

Walkerith

RIVER

TRENT

Inlosure

Loughton

Common

Fields

h ton

Blighton

Misterton

Charnfield Canal

West

**Explanation**

*The Land coloured with Green shews the Low Land.*

*The Land coloured with Yellow shews the High Land.*

*A.D.F. the proposed Warping Stnaics.*

*III. the proposed Warping Drains.*

*The Low Land coloured deep Green is proposed to be Warped first, & then sold to defray the expence of Draining Warping &c. the remainder of the Common.*

*The Drain coloured Yellow is the proposed Catch Water Drain.*

*“To the Proprietors of the Commons, and Waste Lands in the Parishes of Morton, Walkerith, East Stockwith, Bliton, Wharton, Pilham, and Gilby, in the County of Lincoln.*

“Gentlemen,

“In conformity to your order of the last meeting, we have taken a survey of the above common and waste lands; and find the quantity of land to be about 4260 acres, 2600 of which is low land, capable of being warped, the remaining 1660 acres high land.

We have taken levels from the lowest land in the commons to Surworth Sluice, and find the fall very inconsiderable, when compared with the expence and inconveniences that would necessarily arise in cutting through so many townships.

And having also taken levels from the lowest land in the commons, to the Trent at Ravensfleet, we find a fall of 2 feet to low water mark; and the lowest land lying so very near the Trent, we think the fall sufficient to make a good drainage, if a provision be made to take off the upland water into the Trent at a high level, which may be effected as follows:

A catch-water drain should be made from Morton, to skirt the common to G, another from H, to form a junction with the other at G; from thence to be conveyed under the hereafter proposed warping drains at C and E, and from thence to the proposed outfall at F.

And considering that the aforesaid low lands by means of warping may be considerably raised above their present level, we should recommend a warping sluice to be built at A, near Morton, with two apertures of 8 feet wide, and 10 feet high each, and a drain from thence to C, and from thence to E, as described by the blue line on the plan.

Another warping sluice at D, near Walkerith, of the

same dimensions as the other ; and a drain from thence to E, to communicate with the other drain.

The aforesaid warping drains to be 18 feet wide at bottom, 26 feet wide at top, and 4 feet deep ; and to have a foreland of 4 feet, with banks on each side, of 14 feet base, 6 feet top, and 5 feet high each.

Another drain from E to F, the proposed outfall at Ravensfleet, with a 24 feet bottom, 32 feet top, and 4 feet deep, with forelands and banks as aforesaid.

The outfall sluice at F, to have three apertures of 8 feet wide, and 10 feet high each ; one for the catch-water drain, and the other two for the purpose of draining the commons, and warping also.

All the sluices to be laid 2 feet below low water mark.

*Estimate of the Expence.*

	£.	s.	d.
Cutting the catch-water drain, 400 chains, or 3696 floors of earth, at 3s. per floor -	554	8	0
Cutting a main drain, or warping drain, from A to C, and from C to E, 258 chains, or 3746 floors of earth, at 4s. per floor - - -	749	1	0
Cutting a main or warping drain from D to E, 276½ chains, or 4015 floors, at 4s. per floor - - -	803	0	0
Cutting a main drain from E to F, 100 chains, or 1848 floors of earth, at 4s. per floor - - -	369	3	0
Warping sluice at A, near Morton -	400	0	0
Ditto, ditto, near Walkerith -	400	0	0
Outfall sluice at F, near Ravensfleet -	600	0	0
Carried forward -	3875	12	0

# OF LINCOLNSHIRE.

281

		£.	s.	d.
Brought over	-	3875	12	0
Road bridge near Morton	-	150	0	0
Ditto, ditto, at Swansea bridge	-	180	0	0
Two culverts under the warping drains, at £ 100. each	-	200	0	0
<hr/>				
		4405	12	0
Contingencies £ 10. per cent.	-	440	10	0
<hr/>				
		4846	2	0
<hr/>				

*Gainsborough, 4th Jan. 1796.*

A. BOWER.

J. DYSON."

At Althorpe, Mr. Dalton is warping 300 acres, which will be converted from a very inferior state to 30s. an acre. At Knaith he manured a piece with it for turnips, on a sand soil ; the rest of the field with dung ; the warp equalled the dung.

At Amcots, there are other undertakings of the same sort.

At Gainsborough Mr. Smith shewed me a spot that was warped to the depth of 10 inches in eight hours ; and as I was on the Trent, in Mr. Dalton's boat, I was shewed the way of repairing a breach when a bank breaks : they surround the spot with a new semicircular bank, in order to let in the warp, which fills it up presently ; then the new bank may be removed if wanted ; but the spot itself of the breach cannot be repaired without a greater expence ; the warp forms the junction intimately.

At Haxey in Axeholm, view some pieces that are warping on the participant's lands ; some were done last summer, but did not seem well effected. I remarked, that where the warp first came into the pieces, the rushes were clean destroyed. They now seem to be all at a stand.



Mr. Webster at Bankside,\* has made so great an improvement by warping, that it merits particular attention. His farm of 212 acres is all warped; and to shew the immense importance of the improvement, it would be necessary only to mention, that he gave £ 11. an acre for the land, and would not now take £ 70. an acre; he thinks it worth £ 80. and some even £ 100. Not that it would sell so high at present; yet his whole expence of sluices, cuts, banks, &c. did not exceed £ 2500. or £ 12. per acre; from which, however, to continue the account, £ 1500. may be deducted, as a neighbour below him offers £ 5. an acre for the use of his sluice and main cut, to warp 300 acres, which will reduce Mr. Webster's expence to £ 1000. or about £ 5. an acre. Take it, however, at the highest, £ 12. and add £ 11. the purchase, together £ 23. an acre; if he can sell at £ 70. it is £ 59. per acre profit. This is prodigious; and sufficient to prove that warping exceeds all other improvements. He began only four years ago. He has warped to various depths, 18 inches, 2 feet, 2½ feet, &c. He has some that before warping was moor land, worth only 1s. 6d. an acre; now as good as the best. Some of it would let at £ 5. an acre for flax or potatoes; and the whole at 50s. He has 20 acres that he warped 3 feet deep, between the beginning of June, and the end of September; and 18 acres, part of which is 3½ feet deep. This is the worst year he has known for warping, by reason of wetness. He has applied it on stubbles in autumn by way of manuring: for it should be noted, as a vast advantage in this species of improvement, that it is renewable at any time;

\* This is within the line of the county of York, as well as Raw-cliff; but as warping began there, and has been very largely practiced, I thought it would contribute to rendering this account more satisfactory, and therefore viewed the works. No mention is made of it in the Reports of that county.

were it possible to wear out by cropping, or ill management, a few tides will at any time restore it. As to the crops he has had, they have been very great indeed ; of potatoes from 80 to 130 tubs of 36 gallons, selling the round sorts at 3s. or 3s. 6d. a tub ; and kidneys at 5s. to 8s. Twenty acres warped in 1794, could not be ploughed for oats in 1795, he therefore sowed the oats on the fresh warp, and scuffled in the seed by men drawing a scuffer ; eight to draw, and one to hold ; the whole crop was very great : but on 3 acres of it measured separately, they amounted to 14 quarters 1 sack per acre. I little thought of finding exactly the husbandry of the Nile in England. I had before heard of clover seed being sown in this manner on fresh warp, and succeeding greatly.

He warped 12 acres of wheat stubble, and sowed oats in April, which produced 12 quarters an acre. Then wheat, 36 bushels an acre. His wheat is never less than 30.

Six acres of beans produced 30 loads per acre, or 90 bushels ; 1 acre measured to decide a wager, yielded 99 bushels. Has had 144 pods from 1 bean on 4 stalks ; and Tartarian oats 7 feet high. One piece warped in 1793, produced oats in 1794, 6 quarters an acre ; white clover and hay seeds were sown with them, mown twice the first year ; the first cutting yielded 3 tons of hay an acre ; the second 1 ton ; and after that an immense eddish. Warp, Mr. Webster observes, brings weeds never seen here before, particularly mustard, cresses, and wild cellery ; with plenty of docks and thistles.

*Courses pursued on Warp Land.*

- 1. Beans.
  - 2. Wheat ; and this the most profitable.
- 
- |              |              |
|--------------|--------------|
| 1. Potatoes. | 4. Potatoes. |
| 2. Wheat.    | 5. Wheat.    |
| 3. Beans.    |              |

Also,

1. Beans.

3. Flax.

2. Wheat.

4. Wheat.

Flax, 40 to 50 stone per acre.

A sluice for warping, 5 feet high, and 7 wide, will do for 50 acres per annum; and if the land lies near the river, for 70. Costs from £ 400. to £ 500.

At Reeveness warped land has sold for £ 100 an acre.

Lord Beverley has 6 or 7 sluices going; and has warped so far as 300 acres in one year.

Provision is made for warping a great extent of country by a navigable canal, 40 feet bottom near the Trent, which is making at present from the Trent near Althorpe to Thorne, &c. by which extensive tracts will be done, £ 24,000 is expended; a branch to Crowle is marked out; and another from Thorne to the river Dun, these for navigation; but it is not by the canal that the warping is done, but by a soakage drain on each side of it, which drains the country, and at the same time is capable of admitting the tides to deliver warp to the whole country for 12 miles, by cuts at right angles; and to sell warping on either side. The price talked of is from £ 4. to £ 5. an acre. And in case the drains should warp up at any time, provision of sluices is made to let water out of the canal into either, to scour them out clean.

Mr. Nicolson at Rawcliff, takes the levels first;—builds a sluice;—if a quarter of a mile or half a mile, 60 acres may be done the first year; the drier the season, the better. The clough or sluice £ 400. 8 feet wide, and 5 feet or 6 high; a drain 14 feet at bottom, and as much more at top; 30s. to 40s. an acre, of 28 yards; banks 4 to 8 feet high, and expence 7s. to 20s. an acre of 28 yards. Begin at Lady-day till Martinmas; but all depends on season; the depth will depend on circumstances. If a landlord warp, it should be deep at once; if a tenant,

shallow, and repeat it ; as good corn will grow at 6 inches as 6 feet ; at 3 inches great crops ; the stiffer the warp the better. Some seasons, sow corn the year after. Warp is cold, and if deep, takes time ; a dry year best ; great seeds. Crops ought to be, beans 20 loads ; wheat 10 or 12 loads ; oats 10 quarters ; never barley. After 6 years potatoes, and good flax :—He makes it worth £ 40. to £ 50. an acre.

1. Oats.

2. Wheat.

3. Beans.

4. Fallow.

5. Wheat.

6. Beans.

7. Wheat..

8. Beans, till it wants a fallow ; it will go four, five, six years without a fallow. Turnips bad ; tread and daub too much. Has had it twelve or thirteen years without any manure. Mr. Walker, steward to Mr. Twistleden, forty years ago began this practice, but it dropped for twenty years, till Mr. Fareham, another steward, took it up ; many hundreds of acres have been done.—It is full as good for grass as for tillage, and made capital grazing land by it ; an acre will carry a good bullock, and some 2 sheep an acre ; none in winter till after many years. A kid full of the thick water will deposite an inch in a dry time. Certain that it does not come from sea, or from the high country, but from the Humber itself. This is on the river Dun.

By keeping up the sluices, and drains, and banks, refresh the land at any time.

Warp land has had crops of flax sold for £ 10. an acre as it stands ; and then they sow rape on good tillage.

I viewed Mr. Nicholson's warped land with much pleasure, and found his warp in some fields to have been deposited from 2 feet deep at the bottom, gradually shal-

lowing up a slope to 5 or 6 inches at the top, forming a level. Mr. Harrad warping on the other side the bank ; the tide was in the morning I viewed it, and a fish pond and holes were filling up rapidly.

Sand land at Snaith has sold for the plough at £ 100. per acre.

Mr. Wilson's idea of warping very just ; to exhaust the low lands in favour of the hills, then to warp 6 inches deep, to exhaust that to make the hills ; then to warp again ; and by thus doing to keep the warp land in the highest order, and at the same time work a great improvement to all the higher grounds.

*Note by a commissioner employed in warping.* — “ Warp leaves one-eighth of an inch every tide, on an average ; and these layers do not mix in an uniform mass, but remain in leaves distinct.

“ If only one sluice, then only every other tide can be used, as the water must run perfectly off, that the surface may incrust, and if the canal is not empty, the tide has not the effect. At Althorpe, Mr. Bower has warped to the depth of 18 inches in a summer.

“ Ten quarters an acre of oats, on raking in the seed on warp ; the more salt in it the better ; but one fallow in that case necessary, to lessen the effect, or it hurts vegetation.”

A very great object in this husbandry of warping, is the application of it in other districts. They have much warp on all the coast from Wisbeach to Boston, &c. and though a long succession of ages has formed a large tract of warp country, called there *silt*, yet no attempts that I have heard of, have been made to warp artificially there. How much the tides abound with warp may be learned from a remark of different application by Major Cartwright ; he observes :

“ It is true, that immediately below the sea doors, the

rivers warp up in dry seasons to a great height, with a muddy sand or silt, which the tides deposite. The Witham for instance, sometimes warps up 10 or 11 feet on the lower side of the sea doors at the grand sluice.; but the first freshes in the fall of the year have always, hitherto, made an early breach, and soon swept this mud bank into the sea. Apprehensions have sometimes been entertained that in case of a very sudden, and very great downfal, this mud bank might withstand the stream until the banks of the river might give way, and leave the country a prey to inundation. A small portion, however, of engineering skill seems sufficient to avert such a danger; and perhaps it may in time be found, that the mud so deposited may prove a treasure to agriculture, which it would be bad economy to wash into the sea. Two years and a half ago, I laid several hundred loads of it upon my fallows. I perceived little effect from it in the rape; but the barley and the clover have been as good as that which had the benefit of stable dung. Was I to use it again, it would be in compost; but a most improvident clause in what is called the Witham Act (2d Geo. III. c. 32.) will in future prevent my using that silt, unless on the other side of my farm, to which there is access by another navigation, especially since I have learnt the use of the saline silt of my own land."

Such are the principles and practice exerted in this greatest of all improvements, in which the county of Lincoln is rapidly advancing, greatly to its honour, and most solidly to its profit. I never heard of this husbandry in any other part of the kingdom; and if it is considered that so many years have elapsed since its first discovery, it will appear extraordinary that it has not been fully described and explained by our writers and reporters of agriculture. And it might have continued to remain in obscurity, like other local practices, had not the Board of

Agriculture undertaken the Survey of the kingdom. But from this time, assuredly, the proprietors of low lands on other muddy rivers will open their eyes to such enormous profits. On the Wye and the Severn, I conceive that such might be found, on which the improvement would be equally practicable ; and probably on many other rivers.

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## CHAPTER XIII.

### LIVE STOCK.

HERE we enter on the subject which has engrossed more attention in this county than perhaps any other ; and one upon which opinions are more divided. Before I examined the county, I determined to keep my mind free from every bias, and to report the facts procured, and the ideas current, with as few comments as possible ; concluding that the Board is solicitous to discover, not the opinions of a Reporter, but the practice of a county.

#### SECT. I.—*Cattle.*

ALL round Spalding there are many good bullocks grazed, and in Deeping Fen also ; they give from £ 14 to £ 20. a head ; keep them in winter in stable, on cake at £ 9. per 1000 ; making no more than the manure.

Lincoln oxen about Boston, 60 or 90 stone, 14lb.; they are kept on some lands a bullock an acre, on others 2 to 3 acres : on others, 1 on 2 acres, all besides sheep. A bullock and 6 sheep to 1½ acre not uncommon.

About Swineshead, the grazing lands fed with bullocks and sheep ; the former bought in at Boston fair, 4th May ; and at Lincoln, in April, on an average of seven years, £ 12. to £ 12. 12s. ; sell at £ 15. after keeping 6 months.

Mr. Cartwright procured a bull from Mr. Collins of Durham, in the spring of 1794, being then two years old. —I say nothing of the merit, as I have seen very few of these cattle yet.

The Major remarked to me, “that Mr. Thomas Tunnell of Reesby near Wragby, has a breed of cattle which are not surpassed by any in the county for points highly valuable, or their disposition at any age to fatten rapidly. His bull covers at a guinea, and has many cows sent to him. The breed originally came from the neighbourhood of Darlington. From two celebrated breeders there, Robert and Charles Colling, breeding stock has lately been brought into this neighbourhood by Mr. Mudd, and the Messrs. Artons near Lynn ; and I also have six heifers and a bull, bought of the Messrs. Colling. I have also procured heifers of Mr. Tunnell’s breed. In my choice of this stock, I was induced, from a peculiarity in my grazing land, to prefer animals of *a medium size*, to larger ones. My observations upon stock have strongly persuaded me, that the preference so generally given to *great size* in feeding cattle, is a radical error, and that magnitude becomes a defect instead of a perfection, much sooner than graziers are aware of. The perfections of the animal seem to lie in a healthy constitution ; a disposition to feed rapidly *at any age* ; a capacity of fattening upon land *more or less rich by many degrees*, in proportion to the value of such land ; light offal ; the most delicate in grain and flavour ; and most abundant meat on the most valuable parts. Although *shape* will be found essential to much of this merit, *great magnitude* can scarcely be supposed necessary to any of it ; and must evidently conteract it in points of



consequence. In such cattle as I speak of the grazier has many advantages. On very moderate land, he may get them fat; and *on the most powerful land*, he will convert a given quantity of herbage into as much beef, as by means of the largest animals, but I imagine more; he is better insured against loss by accidents and disease, from having that risk more divided; and he has a greater choice of markets."

The Rev. Mr. Berridge has a cow which I take to be also of the Durham breed, which is a very fine one of the sort; and if he gets a bull equal to her, he is like to have good stock.

Mr. Tyndall of Ewerby, has been long celebrated for his breed of cattle; he found them many years ago upon his present farm, which he first occupied, and then purchased; I viewed them with pleasure; for though he has in a very great stock (breeding 40 to 50 calves every year, many very unequal, yet some are capital, and merit their reputation. The grand-daughter of the Two-pap cow; the daughter of Bald-face; the Red cow; the grand-daughter of the old Blue; and the cow called Wide Hips; are all very fine beasts: the last he thinks the best, and would sell at no price; he would not sell the three former under £ 50. each, valuing them equally. Apparently they have Durham blood in them; but having been long here, and bred from very old cows, they are called the true Lincoln breed, and may be pure for what I know; supposing these breeds are not originally the same, which there is great reason to believe they are. These cows would any where be esteemed well formed beasts: they are wide on the hips and loin, have good quarters, clean light bones, thin horns, light dewlap, neat throats, and pretty full in the bosom, with middling spring of rib; and at the same time they shew good milk veins. Wide Hips is  $21\frac{1}{4}$  inches from centre to centre of hip bones, and her quarters the same;

length of carcass, from hips to withers, 3 feet. As to the quality of flesh, and disposition to feed, they appear on feeling to be inferior to several other breeds; I could, however, form in this respect but a very insufficient idea, for of all Mr. Tyndall's cattle, I could feel only these three cows, and that not without danger: they are never handled, and so wild as no approaching them; for a full and satisfactory judgment, you might as well pass over the country in a balloon, as to go into the pastures. No good sign this of any breed; fatness in animals is generally the reverse of wildness. Habit of management will, however, do much in this respect. Mr. Tyndall shewed me a couple of bulls, which I thought very inferior to those three cows; and it is to be noted, that most of the capital stock now upon the farm, was got by a bull that died 20 years old; and some out of cows 20 years old; and a cow now upon the farm of the same age, is not in the worst class of cattle, and spoken of as having been one of the best; this appeared to me to be remarkable, for it implies that there has, in that period, been but a small, perhaps no improvement; which is what I cannot understand, with a man of Mr. Tyndall's knowledge and experience: I started this observation in company, and was told, that *when cattle are in perfection, they cannot be improved*. Mr. Tyndall shewed me also two oxen of very great size, and a high degree of fatness; one in particular is remarkably fat, especially on the ribs and fore-flank, and quarters, as well as to be judged of by eye, for we could not feel them. This beast was guessed last year at 120 stone; apparently he may weigh now 120 stone; and a very extraordinary beast he will be, if a ton of oilcake is given him next winter. Colour, white, which Mr. Tyndall prefers. They are six years old are very wide in the hips; and, for so large a beast, bone small.

Several black and white cows of Mr. Tyndall's breed

seem to class high for cleanness of leg, throat, and horns ; very neat ; with light offals.

The system of breeding pursued by Mr. Tyndall, is to keep all his calves ; they run with the cows all summer ; but many cows have two, and to let the other added have a fair chance, as well as her own, they are coupled together till the cow admits both equally ; this leaves a few in milk for a small dairy ; for butter and cheese are no objects in this country ;\* cows seem to be kept chiefly for the sake of breeding ; and by this means the calves are pushed on for size as the material object. In winter as well as summer, all run in the pastures, only they have hay given occasionally, according to weather ; and the cows straw in the yards. Oxen sold fat generally at  $4\frac{1}{2}$  years old ; but they pay well when kept to  $5\frac{1}{2}$ . His bulls leap at 5s. a cow.

Mr. Hoyte of Osbornby, is in the same breed as Mr. Tyndall, having had cattle from him ; also in the dun French.† I do not admire the flesh of his Lincoln bull ; but a dun cow is far superior. I took the measure of some points of this cow :—hip to hip 21 inches ; quarters long 22 ; length of barrel, from the withers to the centre

\* There are very few farms in this county where the tenants profess keeping cows as a principal profit, but only for the use of their families, and a little butter for the market ; and therefore as the cheese they make is, for the most part, consumed in their own houses, they are not so very careful in the making of it ; and though its quality may have suffered by the high price of butter, the pence in the pocket counterbalances any ill cheer in the eating.

*MS. of the B.*

† In the vicinity of Folkingham, a dun coloured breed of beast has of late years been much attended to by several graziers, and though they may not equal Mr. Tyndall's, &c. in size, or symmetry of shape, yet their propensity to feed renders them a valuable acquisition to the grazier ; they are said to have been originally brought from the Isle of *Alderney* near the coast of France, by the late Sir Charles Buck, Bart. of Hanby-Grange.—

*MS. of the B.*

between the hip bones 36 ; girt at the chine 7 feet 1 inch ; girt at centre 8 feet 2 inches ; girt of the neck at middle, 3 feet 3 inches ; she feels mellow ; broad in the nache, or breech as called here ; six years old. I think Mr. Hoyte will pursue this breed ; and if he does, I have little doubt, by making proper selections through the neighbourhood, but he will get a very superior stock to any thing common in this country. I was glad to see one Devonshire cow on his farm, which, though too small, is enough to speak to the hand what an ordinary specimen of that breed shews.

Uncommon as dairies are in general, it is not universal ; Mr. Grundy of Heath Hall near Grantham, has 40 cows for making cheese, which he manufactures of various sorts, and with much success.

Viewed Mr. Hough's cattle of Threckingham, amongst which there is nothing comes up to the dun breed, or French ones ; in 1789 he killed an ox of this breed that weighed  $116\frac{1}{2}$  stone, at seven years old, and measured 2 feet 7 inches from the outside of one hip to the outside of the other ; and he has now a three year old cream-coloured heifer of that breed, but with a small cross of the Alderney in her, which is remarkably wide, and feels vastly more kindly and mellow than any Lincoln beast I have yet handled. This dun breed of cattle was introduced above twenty years ago, by Sir Charles Buck from France ; they were not originally larger than Alderneys, but they have improved here so much in size, that they are now nearly, if not quite, as large as the more common sorts of the country. In this yellow cow the French blood was a little restored by a cross of a yellow Alderney, and it is singular that this cow was admitted, by several considerable breeders, to feel remarkably well, and to have otherwise great merit ; yet as a breed, it has been entirely neglected, no person whatever having taken them up to

form a breed from them, *in and in*, to see what they would come to by a good selection of them. I advised Mr. Hoyte to do it; and he is the more likely, as he has a very good opinion of them, and Mrs. Hoyte urged also their having been their best for rich milk, and fat calves.

About Belton, cows that are not bad give 6 or 7 lb. of butter a week.

Devons have been introduced by Mr. Cholmondely at Easton near Closterworth, and by a gentleman at Westby.

Lord Brownlow is in the common Lincoln, and has a very large bull.—I think he will change his stock.

Mr. Bestal at Leadenham, has a dun bull of six years old, got by Mr. Hough's of Threckingham, which, from feeling, I judge to be well inclined to fat, and to get stock with fine flesh. But in his points he is not capital; clumsy and projecting in the shoulder, and falls in too much below the chine. The Rev. Dr. Ellis here informed me of a Lincoln cow, that was in the possession of the Rev. Mr. Hecket of Beckingham near Newark, that produced 19 lb. of butter in one week; but at Leadenham 6, 7, or 8 lb. are common for good ones.

Mr. Chaplin has at Blankney a fine bull of the Lincoln breed, belonging to his relation; four years old; very large, and free from any gross fault in his shape; he would be better if his hips laid higher and rounder, and if his shoulders were rather cleaner; but his flesh is good and mellow. This gentleman has also got a couple of Devonshire cows, which he procured to cross with the Lincoln breed, as he thinks, and justly, that the mixture will be an improvement. They are not so large; but he thinks this no disadvantage on land not of the first quality.

About Hackthorne, &c. the larger farmers buy in beasts in autumn; put them to eddish, and then feed





with cake; sell from Christmas to May-day; this is done for the sake of the dung; and thought if that is cleared that it answers well.

Mr. Thorpe at Kirton, fattens many beasts every winter on cake; his landlord, Mr. Harrison, having built him for that purpose very convenient stalls, in a double range, with a gangway between their heads. They are in the Hereford style; the beasts may be loose or tied: a pump supplies water by troughs to cisterns: the whole well executed. He has sold beasts from these to £ 38. a head, and fats 40 in a season. The same farmer has on his farm at Owersby, Lord Monson the proprietor, another bullock-house, in the same form nearly; here he fats also on oilcake; but the dearness of it induced him to substitute lintseed, boiled and mixed with barley meal; 2 quarters of barley, 4 bushels of lintseed; and mixed to give cold, in the form of a rich jelly; this quantity will go as far as half a ton of cakes, costing less, when barley is not extravagantly high, that is, 24s. a quarter; half a peck of lintseed is boiled in 4 gallons of water. I inquired of Mr. Thorpe particularly if he had reasons adequate to the expence, for not tying beasts in their stalls, instead of giving them so much room separately; and he is clear they fatten much better: this necessity, however, is not ascertained; for the question can hardly be considered as answered in any case where a farmer builds, and a landlord pays. Mr. Thorpe buys his beasts at Lincoln; he thinks the Holderness too big for his purpose; but there is a very good cross of long and short horns about Spilsby, which fatten kindly, and which he likes to buy. Is of opinion, from very considerable experience, and speaking of grazing in general, both summer and winter, that middling sized beasts will pay better than large ones; for instance, two of 50 stone will answer better than one of 100; they do not take so much food



to bring them to their weight; and will do on worse pasture.

At Knaith, where the pasture is not of the first quality, Mr. Dalton has fatted Teeswater beasts to 130 stone, at seven years old, and gave only half a ton of cake to each. He prefers this breed to any other he has tried. His beasts of 80 stone will be fat at five years from grass, without any cake; and his regular return is seven a year, at four years old. The cows are good milkers in their own country, but here are not equal to Lincolns. He is of opinion, in relation to the size of fattening animals, that an ox of 80 or 85 stone will not eat more than one of 50, and his bailiff thinks he will not eat so much.

At Haxey in the Isle of Axeholm, they have an odd way of ladling the milk when it comes from the cow, till it is cold, before they *set* it for cream. Experiments of comparison should be tried, to see if they are right in this, or if wrong, in what degree. Mrs. Lambe, I hope, will try it carefully.

At Bankside, Mr. Webster feeds his cows, and his team horses with steamed turnips and cut chaff, with great success.

About Normanby, Burton, &c. it is a great breeding country: they wish some of their cows to calve the latter end of the year, in October or November; then they let them run with the cow all winter, in the fields generally; but this is only in singular cases; and are fond of autumn calves; but in general the calving time is in spring; suck ten or twelve days, then weaned; what butter they make goes to Hull; but in general breeding the calves is the great object; dairy no where the first aim. Suck a great while; by this means the dairy is sacrificed to the breeding; when they wean, they do it with porridge; they sell fat at six years old; heifers at three years spayed; but the quantity of oxen grazed, few;

generally sold into the marshes to the graziers; get £ 12. to £ 16. for them lean, at five years old.

They have for some years crossed the Lincoln short horns with the Craven long horned bulls; and Mr. Goulton of Walcot has found them much better than either; four beasts of the half breed were sold by Mr. Sutton at Leeds, 84 to 92 stone each; four years old off; one cross only, for by going further, the improvement ceases: prefers this cross to the short horned breed. Mr. Skipwith breeds many calves, and the cows suckle 3 calves, kept in house, and even 5 to a cow; buys calves for this purpose.

Mr. Uppleby of Barrow rears many calves, some run with the cows coupled together; and a cow will bring up four in the summer: has known more. Others he brings up by rearing at about six weeks, and gives first new, then skim milk.

He has some Alderneys, and I could not help pointing out to Mr. Uppleby the superiority of their form, their smallness of offal, and kindly feeling flesh, for a comparison with the Lincoln.

Mr. Lloyd of Belesby, has 100 head of horned cattle in all, breeding 20 calves a year; he keeps all his labourers' cows, and buys their calves, milking only 4 or 5 himself. Sells at four years old fat; and spays about half the heifers. These, at four years old, weigh in June 54 to 60 stone; and the oxen by Christmas 60 to 70 stone. They are all of the long horned breed, which he has been in since 1788, when he was at Mr. Fowler's, from viewing his stock then, and taking a bull. He was in the short horned breed, and had good ones. He is convinced they are preferable to the short horns, better feeders, and lay most beef on the best joints. Those he has bred in and in are very tender, more so than the short horns; he

will therefore breed in and in no more ; but he observes nothing of this in the Leicester sheep. He thinks the long horns as saleable as the short horns ; keeps as many on the same land as the short horns, but not more. Has killed to 100 stone, and Mr. Skipwith the same breed to 128. They joined with Mr. Ostler for the bull ; but the latter is got out of the breed, not liking them. That gentleman killed a short horned ox of 150 stone 9 lb. six years old, cake-fed the last winter. For the weights above given, Mr. Lloyd never cakes, but for large ones he does. I felt of Mr. Lloyd's two bulls, the long and the short horned ones ; the latter is by far the best ; I have not often touched a worse for feeling than the former. This breed, I apprehend, will not be kept much longer by so skilful a stock master as Mr. Lloyd. What pity, when he made the trial of a change, he did not take Devon, Sussex, or Hereford !

Mr. Skipwith, of whom I made inquiries concerning the long horned breed, informed me, that he kept both breeds distinct ; but that he had not possessed the new sort long enough, to have made up his mind on the comparative merit.

About Humberston, the breed is mixed with long horned. Mr. Tomlinson, who came from the East Riding of York, has the Holderness, as he does not approve of the long horned. They do not regard the dairy further than what is sufficient for the family ; but rear many calves, and sell lean at three or four years old ; most farmers fatten a few, as from 4 to 6, giving cake in the winter, especially to the beasts that have been worked ; but it is not general. Heifers sell at £ 13. or £ 14. at high rates ; oxen £ 15.

Mr. Bourne of Dalby, breeds a mixture between long and short horns, which he thinks better than either of

them distinct ; they are kindly feeders, and not being so large as the short horns, better adapted to the soil ; he sells them fat at London, at three and four years old, from £ 15. to £ 18. each, including both heifers and oxen.

Mr. Wright of Spilsby, has had cattle from Durham, as a purer breed than the same sort in Lincolnshire ; but six or seven years ago has had a long horned bull ; they do not come to the weight of the short horns by 10 stone in 80 ; not so saleable as the long horned at Smithfield ; but the butchers here like the short horned best. Equal in hardiness. Good short horns will fat as quick. Sells at three years old in June or July, 56 to 60 stone. Keeps 150 head ; rears above 40 in a year ; but milks only 6 cows. Couples them, two to one cow. No cake.

Sir Joseph Banks had the goodness to shew me, at Boothby, in the Middle Marsh, in company with the Rev. Mr. Walls of Spilsby and that place, two beautiful short horned heifers, Spot and Gypsey, bred by his Majesty, and now extremely fat ; they are only four years old ; the smaller of the two of the more correct form ; but both are beautiful animals.—Measure of Spot.

Across from the centre of one hip to the	<i>ft.</i>	<i>in.</i>
centre of the other	2	1
Length in quarters from centre of hip	1	10
Breadth of nache, eight inches below the tail		
setting on	1	6
Girt chine	8	0
— centre	9	2
Length from withers to rump point	5	4
Height at rump	5	0
Girt neck	3	7
Horn to withers	2	8

Of Gypsey.			ft.	in.
Width hips	-	-	2	2
Nache	-	-	1	3
Quarters	-	-	1	11
Lengh to withers	-	-	4	7½
Girt chine	-	-	7	8½
— centre	-	-	9	0
— fore-leg	-	-	0	8

They have one cake, and half a peck of beans split each *per diem*. They are called Holdernessee; but as that is the same as the true Lincoln, I may observe, that Gypsey is the best Lincoln beast by far that I have seen.

Weight at London.

Spot alive 155 stone, at 8lb.

Dead 100 stone.

Gypsey alive, 127 stone.

Dead 82 stone 4lb.

Born in May, 1793.

Sold for £ 70.

Mr. Parkinson of Asgarby works oxen, and is very fond of them; I saw two and a horse draw home in a waggon, as good loads of corn as are common in Suffolk with three horses.

In the whole hundred of Skirbeck, there is very little in cattle that deserves attention; they have not in breeding been at all attentive, nor is the scale any thing considerable; but the breed in general is mostly short horned. Mr. Linton milks three or four cows, and rears six calves every year, which he fats and sells at four years old, for £ 16. to £ 25. each, average £ 19. And this he thinks a very profitable system, connecting well with his straw yard. He sometimes turns them on the fen.

Mr. Loft at Ranby uses a long horned bull from Mr. Stone, introduced here by Mr. Codd to cross the short

horned, which are better in the cross, than either separately ; better flesh, and fatten kindlier.

Mr. Thomas Tannard of Frampton prefers the true short horned beasts as the best for the Lincoln grazier. He has tried Fifes, Northumberlands, and Lancasters, which do very well, provided they are wintered ; but to sell all by the 4th of December, nothing like the short horned.

The prices of cattle were long ago very high in this county. The father of Mr. Loft of Marsh Chapel, 50 years ago, sold a cow and a ewe for £ 40.

This gentleman has a high opinion of the half breed between long and short horns : he has a very fine long horned bull from Mr. Stone of Quarn. Stock got by him out of short horned cows, have at four years old, been sold from 25 to £ 30. And he saw a cow of the half breed at 18 years old, that weighed 95 stone. He sold four half bred at £ 27. 10s. each ; one 3½ years old, and 3 old. He gave £ 9. each for these three, and had them only nine months, yet trebled their value without cake or corn. He has also been very successful with short horns, unmixed ; he has fatted an ox at four years to 119 stone, that never ate any thing but grass and hay.

Mr. Smith of S. Elkington finds the long horned breed more thrifty on poor land than short horns. He breeds 20 a year, selling fat at four years old, 60 stone ; at five or six years they come to 80.

Mr. Ellison at Sudbrook, buys in about 30 bullocks annually ; from April to Midsummer puts to grass till a fortnight after old Michaelmas ; then puts them part in stalls, and part remains in grass till near Christmas. In the stalls, feeds with cake and hay ; they eat about 2½ cakes a day, at 7 lb. each, and about half a ton of hay each beast ; and are up about 10 weeks, some 12. They were bought in at £ 15. each last year ; and sold at about

£26. In general, reckons them to pay £10. each, which answers well. Prefers the short horned breed ; has tried long horned Cravens, but they did not answer at all ; His bailiff chooses the smallest boned ones he can get ; clean heads and muzzles, wide in the hips, out in the ribs, and deep in the fore quarter. The greatest fault in the Lincoln short horns, are being thin in the backs and chines ; it is not universal, but very common ; but upon the whole they fatten kindly. Observes, that the oil-cake dung is uncommonly rich, so as by mixing to make the straw dung excellent.

Mr. Moody of Riseholm fats many beasts upon oilcake, even as far as buying 100 tons of cake in a year. He keeps them loose in a straw yard, and finds they do well without any hay, giving straw only in addition ; and has sold beasts thus fed at 40 guineas.

Mr. Hebb of Claypool breeds many cattle, all short horns, which he prefers much to the long horned kind. He approves very much of all the Devonshires he has seen, but never tried them. The dun breed about Folkingham good, but likes the true Lincoln better. He shewed me two cows of this kind, which give each seven gallons of milk a day, yet are at the same time inclined to fat.

Mr. Walker's stock of cattle are chiefly short horned, of Mr. Tyndall's sort, which he prefers to the long horned ; he breeds a score a year. He had once many long horned ones ; but the best bred ones proved unhealthy, and he was forced to change the stock. He found them tender when young, and very apt to scour.

The Duke of Ancaster fattens many beasts ; he buys in from Candlemas to Midsummer, generally Scotch and Welch bullocks of 34 to 50 stone, sometimes larger ; sells fat from Midsummer to December. Gives on an average for the two last springs, £8. 8s. or £9. each,

and sells at 13 to £17. They are kept through the winter in the park, and go off at Midsummer twelve months after. Have no fodder, except in a blast. North Wales, Pembroke, and Highland Scots, and very little difference in advantage; the Welch grow rather more, and come to greater weights. The Fifes grow more than any, when they happen to be bought, but they require foddering.

Mr. Parker remarks, that there is little attention paid to the breed of beasts in this country. In the open field towns the breed is wretched: they all run together on a pasture, without the least thought of selection. At three years old, they are worth about 7 or £8.; and if they would pay the same attention that is paid elsewhere, instead of that they would be worth 12 or £13.; and all this result is from being open and uninclosed; they will breed four or five calves from a wretched cow before they sell it, so that a great quantity of food is sadly misapplied.

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I have very little to observe upon the preceding notes: it is evident that the Lincoln breed of cattle, upon Lincoln pastures, are profitable; and it appears evident, from the general colour of the comparisons made with the long horned breed from Leicestershire, that their own short horns are superior. In the next article, on Sheep, it will appear that the breeders and graziers of this county are by no means to be accused of that sort of prejudice, which will not give a fair trial to the introduction of a new sort of live stock; but that on the contrary they are most ready to make experiments; the long horned breed having therefore been tried, and given up by so many, even by a member of the Leicester Tup-club, shews clearly that it was an attempt, to introduce an inferior breed; and the result has been such as it ought to be, amounting in the whole to a considerable and varied



experiment. As this famous breed of Leicester has failed so greatly on comparison with the Lincoln, it surely deserves the attention of breeders in other counties (if any such there are) who are trying to introduce that stock, which is thus proved to be so inferior to one that is not supposed to be the best in the kingdom, but which, in the opinion of many excellent judges, is on the contrary inferior to several others. I scarcely know an experiment more wanting than that of planting a colony of good North Devons in this county, for breeding, working, and fattening.

#### SECT. 2.—*Sheep.*

I HAD made but little progress in the county before it was evident that the information I should receive under this head would be considerable ; I had therefore planned a regular arrangement of the subject, so classed as to present under every head the respective circumstances procured ; but upon further consideration, I found that more would be lost in accuracy by this method, than was gained in clearness. Every breeder that offers various facts upon the same topic, of course throws out circumstances, which in union may give a light to each other. If, upon the general colour of his article, there is an air of accuracy, or on the contrary, of too free *assertion*, such should appear, that the reader may give that degree of confidence which the particulars seem to merit. But all this satisfaction would be lost, if every article was not given as received. Upon common subjects which do not excite a spirit of emulation and discussion, the necessity is not equally apparent ; but in the present temper of the breeding mind in Lincolnshire, it appears to be the only method of enabling the reader to have the full information necessary.

The system at Long Sutton, upon their rich lands, once common, is to buy shearling wethers at Boston, in April or May; the price, in 1796 and 97, from 40s. to £3.; they keep them one year to shear, and sell some at £4.: but in general, buy at 36s. to 42s. and sell at £3. besides two fleeces, which are worth 10s. to 12s. The profit may therefore be laid at about 30s. a head, which is very great.

Wool last year, 21s. 6d.; was once 27s. It will not keep more than a year without some damage. All true bred Lincoln.

Mr. Graves of Spalding buys, for Deeping Fen, shearling wethers in the spring, at 35s. each, which after clipping three times, he sells at 45s.

Mr. Graves had a true Lincoln sheep, that clipped, the first year, 23 lb. of wool, and the second year 22½, and was sold at Smithfield at Christmas, and weighed 40 lb. a quarter. Of this sheep Mr. Bakewell said, that he ate as much as three; but that was mere assertion. Mr. Graves thinks that the new Leicesters are an improvement, in fattening sooner, but likes the first cross best; a Leicester tup and a Lincoln ewe; and these will give 10 lb. of wool.

This gentleman's sale last year, from the fen and marsh, was,

40 at 58s.	}	Many of them 2 shear, some three.
35 at 70s.		
60 at 50s.		
60 at 54s.		
44 at 69s.		
70 at 55s.		
8 at 75s. 6d.		
100 at 59s. 3d.		
70 at 53s.		
81 at 54s. 6d.		
72 at 54s.		

Had two fleeces from them, worth 17s.

In 1796, he sold 3568 tod of wool, at 23s. Has kept wool four years, and lost nothing, neither by waste nor moth; but next the tiles. It will not do on a ground floor. Price now 18s to 19s.

The Mr. Fishers at Weston have new Leicester sheep, and answer very well; have sold two shears at £3.

Two sheep an acre in winter, on the rich land near Boston. In summer three or four, besides bullocks.

Two shear sheep about Boston, not common, in general three shear. Price, in 1797, 56s. for shearlings; two give a tod of wool. Mr. Fydell of this place, who has been one of the greatest graziers in this county, made a fair trial between the new Leicester and old Lincolns, in which the latter turned out best; and in some of them which he killed, the comparison, as to offal, was very much in favour of the Lincoln; which he thinks will, on the rich lands in that vicinity, answer much better than any other breed of which he has had experience.

Mr. Charles Trimmell of Bicker, near Boston, has sold Lincoln shearlings at 42s. each, at Michaelmas, without having any cross of Leicester blood in them; and killed a wether of 67 lb. a quarter, four years old; never had any cake, but was made up with sow-thistles for two or three months. This sheep was bred by Mr. Hutchinson, in Hail Fen, from a ram bred by Mr. Robinson of Kirby, near Sleaford, or Mr. Fisher of the same place, and fed to this amazing size by Mr. Trimmell, of Bicker Fen, near Boston, Lincolnshire, upon fen land.

He never ate any corn, oilcake, &c. but fed wholly upon grass and herbage; being turned, with many other sheep, into a field of clover, this sheep was observed first to search for all the sow thistles, and would eat no other food whilst any of them could be found in the part of the field that was hurdled off successively, a little at a time. A kind of hut was erected for him in the field to repose

under in hot weather; and when the part that was hurdled off became bare of food, the shepherd, being guided by his propensity for sow thistles, gathered a quantity for him, at stated hours, three times a day, from 2 to 5 lb. at a meal.

Standing on his feet he measured only 2 feet 6 inches high; he was weighed once a month, and weighed alive 26 stone, at 14 lb. to the stone; he gained only 1 lb. the last month; and then thinking he had got to the top, and quite ripe, and might possibly lose 3 or 4 lb. the next month, he was killed on the 13th day of October, 1791, by Mr. Isaac Lumby of Bicker, being then a four-shear or four years old sheep.

The skin hung up by the nose, measured 10 feet 2 inches from the point of the nose to the tip of the tail, and was sold for 7s. 6d. in the common course of business.

The carcass measured 5 feet from the nose to the tail, its rump or cushion  $8\frac{1}{2}$  inches in depth, plate or fore flank the same thickness, breast end 7 inches, 1 yard  $5\frac{1}{2}$  inches round the collar, and weighed 67 lb. a quarter.

The legs were estimated at 40 lb. weight each, but if cut haunch or venison fashion would have weighed 50 lb. each; which the proprietor, Mr. Lumby, sold at 2s. a pound, so the two legs only brought £. 10.

Mr. Watson informed me, that buying 200 sheep that came to 24 lb. a quarter, one among them came to 41 lb. a quarter, and fattened soonest and kindliest, and apparently did not eat more than the others.

In Holland Fen,  $2\frac{1}{2}$  fleeces to the tod; on the Wolds, 3. Three-shear sheep, average  $2\frac{1}{2}$  guineas. Two-shear, 35 to 40s. by John Cartwright, Esq.

Mutton uncommonly marbled, and the best feeding sheep Mr. Cartwright ever had, a cross a ram half Lincoln

half Spanish; and the ewe Lincoln; the lamb of that cross well fed, was this.

Viewed a two-shear tup of the old Lincoln breed, belonging to Mr. Bartholomew, on the farm of Mr. Thacker of Longrike Ferry; his neck was 2 feet 11 inches girth; his fore leg  $5\frac{1}{2}$  inch; yet the loin only  $8\frac{1}{2}$  inches. Great weight of bone, and heavy offals; an appearance of immense wool, but coarse on the breech. Another of the same breed, better made and woolled.

In Holland Fen, generally rear a lamb or something more to every ewe.

About Swineshead, the rich grass grazed with sheep and bullocks. They buy in for stock, hoggets and shearlings at Ladyday; hogs at 30s.; shearlings 40 to 45s.; the shearlings kept a year, take the fleeces, as they clip when they sell, though before the common time; last year, sold at 50s. to 60s. but very high; average for seven years, hogs bought at 20s. and kept two years; shearlings bought at 32s. sale 40s. All clipped thrice; the three fleeces, 1st. 9 lb.; 2d. 11 lb.; 3d. 9 lb.; in general the three a tod of 28 lb. Leicesters go at two shear.

Mr. Cartwright thinks that adopting a breed between Lincoln and Leicester, would be better for Holland Fen, than to introduce all Leicester blood: to preserve the Lincoln skin and wool of a good quality, for there is some very coarse and bad Lincoln wool; but with the improvement of the carcass, especially in the fore quarter, by means of Leicesters, thus a breed might be raised, the larger the better, which would perhaps answer the purpose better than either breed pure. Mr. Tyndall, in conversation, admitted that the Leicesters are more tender in winter than the old Lincoln, demanding a drier layer. In combining the two breeds, therefore, here is wool, carcass, a quick return (if more profitable than the third

year of the Lincoln) and hardiness, all to be taken into the account.

Mr. Cartwright had for several years Northumberland ewes, larger size than Leicester; fuller in the fore quarters than Lincoln; a good disposition to feed; wool, finer than Lincoln, fleece 6 or 7 lb.; covered with well selected rams from Mr. Bartholomew, and Mr. Chaplin, but latterly from Mr. Codd of Ranby, who was deeper in Leicester; the effect improved the carcasses gradually, and kept up the wool tolerably in weight, but much improved in fineness.

Mr. Hoyte of Osbornby has been 17 years in the new Leicester; he has had tups from Mr. Buckley, Mr. Breedon, and of late Mr. Walker of Woolsthorpe; I viewed his stock with pleasure, he has some shearling tups, and two shear that are good; but his lambs promise to be the best on his farm, which shews a right progress of improvement. He has a two-shear with a loin  $9\frac{1}{2}$  inches wide, and only 4 inches difference between the chine and centre girt; leg 4 inches circumference. A three-shear wether, leg  $3\frac{1}{2}$ ; difference in girt only 3; and loin  $9\frac{1}{2}$ ; very broad in the chine; fat and heavy fore flanks.

In 1796 there was a new Tup Society established at Lincoln, for the encouragement of breeding; a sort of offset from the famous club of Leicester. There are ten original members; the chief object is to promote the spirit of breeding in this county; by the rules of the society, in union with that of Leicester, it was agreed, that the Leicester breeders should shew their rams two days previous to the letting day; that they should let no ram to a wether breeder in the county of Lincoln under 30 guineas; that they should give the preference, in letting rams into Lincolnshire, to the Society; and in return, agreed, that no ram in Lincolnshire should be taken to

- market, or let under 5 guineas; and to sell no ewes, but what is to go to the butcher. The Leicester folks have been so badgered for their tup club, that they have persuaded their Lincoln brethren to form another, to divide the odium. The Leicester motto is, *let those laugh who win.*

Mr. Tyndall of Ewerby has been seven years in the new Leicester blood, and has some good stock, but capable of improvement; he is however one of the most considerable breeders and graziers of sheep in this country. June the 29th, 1797, he sold his wool of the preceding year's crop, 1518 fleeces, 465 tod, at 21s.: this is 8½ lb. per fleece. This gentleman observed an article of management to me, which, though it may be well known here, is not generally so elsewhere; that in weaning lambs, they should not be drawn off from the sheep, but the sheep drawn off from them; by being left in the pasture they are more quiet, not apt to be equally disturbed, and generally do better. In discourse with him upon the introduction of the new Leicester breed, to which he is now a great friend, though once an enemy, he candidly admitted, that being a tenderer breed than the old Lincoln, they will not pay, when at 2½ years old, for keeping another winter like the Lincoln, therefore it is more advantageous to sell them a year sooner than was formerly the custom with the old breed.

It is said that the late Mr. Chaplin took a cross of new Leicester, 25 years ago; mentioned as a proof of the difficulty of finding the true Lincoln blood unmixed. Mr. Bourne of Dalby also had a Dishley sheep so long ago as Mr. Bakewell's failure; above 30 years.\*

\* An idea is current in this country, that Mr. Bakewell derived his breed originally from Lincolnshire. On this supposition a correspondent remarks.—If Mr. Bakewell derived his breed originally out of Lincolnshire? If Mr. Walesby and many others

Mr. Wetherel of Hackington informed me, that of what was called Lincoln sheep, he totted all threes; and now under new Leicesters, half threes and half fours. Keeps the same number, but fatter. This gentleman gave, as his opinion, that on the rich land of Holland Fen, and about Boston, the last year of keeping from two-shear off to three-shear off, pays better than any other year.

In conversation at Mr. Tyndall's, in company with many eminent breeders, the following table of the value of new Leicester sheep, at various ages, was taken :

Wether lambs, at 6 months, worth	-	-	5.
_____ , at 12 months	-	-	17
_____ , at 18 months	-	-	30
_____ , at 24 months	-	-	35
_____ , at 30 months	-	-	45
_____ , at 36 months	-	-	45
	-	-	55

According to this table the scale of receipt is,

			£.	s.	d.
For the first summer	-	-	0	17	0
For the first winter	-	-	0	13	0
For the second summer, including 8lb. wool					
at 9d.	-	-	0	11	0
For the second winter	-	-	0	10	0
Carried forward	-	-	2	11	0

have improved the breed of the county since Mr. Bakewell set about perfecting the ovian race? there must be something radically good in the sort—something worth mending—something well suited to the county, worthy the attention of the honourable Board. Indeed to encourage the breed of the best sort of sheep that will suit the soil, is highly laudable; to point out the quality of the wool each district ought to produce; to encourage an excellence in that most valuable article, in a county where so much of it is grown, would be a beneficence almost divine.

*MS. of the B.*



	£.	s.	d.
Brought over -	2	11	0
For the third summer, including wool -	0	6	0
For the third winter, including wool -	0	16	0
	<hr/>		
	3	13	0
Three fleeces -	0	18	0
	<hr/>		
As above - -	2	15	0
	<hr/>		

At 73s. they pay, per annum, 24s. 4d.

At these prices the last half year pays better than any ; if this is just, there is a great loss by selling at 2½ years old, for it is just at the conclusion of the worst half year there is.

Mr. Dawson of Berthorp has been ten years in the new Leicester ; he did me the favour of shewing me a very fine parcel of two-shear wethers :—capital sheep indeed ; bred from Mr. Dalby's tups. Last year he sold 200 two shear ones at £3. round. The following is his table of sales for seven years, of wethers of that age.

	s.
1790 average -	35
1791 - -	35
1792 - -	43
1793 - -	38
1794 - -	44
1795 - -	50
1796 - -	60
He tots threes.	
Average -	2 3 6

And at this average he would thus divide it, by supposing the proportion to be,

		£.	s.	d.
At 6 months	-	0	17	0
At 12 ditto	-	1	7	0
At 18 ditto	-	1	12	0
At 24 ditto	- -	2	0	0
At 30 ditto	-	2	3	6

Mr. Thomas Parkinson between Doncaster and Rotherham, has often bought Mr. Dawson's wethers of this age, in order to graze on turnips, getting some off in spring, and the rest early in summer at very high prices; and Mr. Dalby bought 3 of him, which after a year's keep sold at Rotherham for £ 5. 10s. each. Mr. Tyndall on this observed, that old sheep will stand the winter better, and pay better for keeping than young ones. Surely all this takes off much from the advantage said to be the great merit of the modern improvement, which magnifies the benefit of what is called the quick return?

Mr. Hough of Threckingham has a few two-shear, three-shear, and four-shear favourite wethers of the new Leicester breed, which are fine sheep, and very fat; they are supposed to weigh 36 lb. a quarter. This gentleman shewed me a Smithfield salesman's bill of 3 new Leicesters two-shears, and 1 Lincoln three-shear; the former sold at 65s. and the latter at 46s.: yet this Lincoln, when a hogget, was worth more than either of the Leicesters.

The following is a series of the prices of wool per tod of 28 lb. sold from one farm near Folkingham in this county, from A. D. 1758, to 1794.

Date.	Price.			Date.	Price.		
	£.	s.	d.		£.	s.	d.
1758	1	0	0	1777	0	18	6
1759	1	0	0	1778	0	14	6
1760	0	19	0	1779	0	12	0
1761	0	16	0	1780	0	12	6
1762	0	17	0	1781	0	12	0
1763	0	18	9	1782	0	11	0
1764	0	19	6	1783	0	14	0
1765	1	0	0	1784	0	15	6
1766	1	1	6	1785	0	13	0
1767	0	17	6	1786	0	16	6
1768	0	15	0	1787	0	17	0
1769	0	15	0	1788	0	17	0
1770	0	14	6	1789	0	18	6
1771	0	15	0	1790	0	18	6
1772	0	15	0	1791	1	0	0
1773	0	15	6	1792*	1	3	6
1774	0	18	0	1793	0	17	0
1775	0	17	6	1794	0	18	0
1776	0	17	6				

Besides Mr. Hoyte, Mr. Hough, and Mr. Dawson in his angle, I called on Mr. Byshe, but he was absent.

Lord Brownlow's flock at Belton, managed in the common method of the country, consists of,

Breeding ewes	-	-	240
Rams	-	-	4
Culled ewes; <i>drapes</i> two, three, four, five, and six year	-	-	100
Shearling wethers	-	-	100
Two-shear wethers	-	-	100
Theaves; ewe hogs	-	-	100
Lambs	-	-	240
			<u>884</u>

\* In this year the same sort of wool was sold as high as 27s. per tod; a price that wool of that description was never sold at since

Value of his Lordship's wethers at various ages, on an average of seven years :

		£.	s.	d.
At six months	-	0	12	0
Twelve ditto	-	1	0	0
Eighteen ditto	-	1	5	0
Twenty-four ditto	-	1	15	0
Thirty ditto	- -	1	15	0
Thirty-six ditto	-	1	15	0
Forty-two ditto	- -	2	0	0

First fleece of wool 8 lb. ; second 8 lb. ; third 7 lb. This is Mr. Abbot's account ; but I cannot understand their remaining at the same price 3 years together.

Mr. Betsal at Leadenham, keeps 100 breeding ewes of the new Leicesters, and has 100 lambs on an average ; 100 shearlings, and 100 two-shear ; half wethers sold at that age, at 40s. to 55s. ; and his four or five shear ewes at 58s. ; the wethers are bought of him to put to turnips. At Bruton in the Vale, they have begun to clip lambs.

On the Wolds, large flocks. They do not commonly sell lambs, but having marsh land, keep them till shearlings, then sell them to butchers, and also to other graziers, to carry on. Three to a tod, the outside of wool. Never fold ; the sheep will not bear it.

Mr. Chaplin at Blankney, sells his shearlings from 30s. to 38s. ; and have been re-sold at two shear at 60s. Last year his shearlings were 36s. His breed has a good deal of Leicester blood in it.

At Hackthorne, &c. the heath farmers keep breeding flocks ; and sell the lambs in April, hoggets in the wool ;

the year 1728, when, by reason of a very extraordinary rot amongst the sheep (in two preceding years), it was sold at 30s. This information I had from the late Mr. Metherringham of Spanby, county of Lincoln, who died last summer at the great age of near 100 years, and retained his faculties in a wonderful degree to the last.

*Mr. Gregg. MS. of the B.*

the wethers, and the culled ewes; price of the former 37s. or 38s.; about 30s. the average; for the culled ewe hogs about 20s. Fatten the old *drape* ewes on turnips; and the wether lambs the first winter are on the same food.

Mr. Harrisson at Norton-Place, keeps breeding ewes of the new Leicester sort, and has some very handsome ones; he sells the produce shearling wethers in November, at 4cs. or 41s. times being high, but less when prices are not equal. They clip half threes, half fours. Hogs will sell 28s. to 30s. in April, turniped. Mr. Thorpe at Kirton has a very fine arable farm, on which there is a good crop of lambs of the same breed; but as he has another where he resides, his best are at home; he goes into Leicestershire every year, and gives as high as £130. for a tup; lets him up to 50 guineas. I viewed his tups at Owersby, and think he has some which will do him credit. But he is now breeding, if I am to judge by comparing his two and three-shear tups with his lambs, in a manner that will make a great change in his stock for the better. Very few, if any, of the breeders I have seen in this county, seem, however, to be sufficiently impressed with the idea of *raising a peg*, to use Bakewell's expression, every year; on this principle, the youngest tups of a farm ought always to be the best.

In discourse with Mr. Thorpe on the advantages of changing the old long woolled breed of Lincoln for new Leicesters, I wished to have them clearly ascertained. He remarked, that he was for many years in that breed, and sold his wethers then at the same age as he does now, but not fat; if he would reach the same price, he must keep Lincolns to May or June. At Wakefield market he has had both, and his Lincolns did not sell for so much as the Leicesters, by 10s. a head. Shearling Leicesters have sold as high as two-shear Lincolns. But, on the other

hand, the difference in wool has been as much as 8s. to 16s. He has got off shearling wethers in February, at 51s. each. In point of stocking, he runs Leicesters thicker by one in five. He admits, however, with all I have conversed with, that the Leicesters are tenderer in winter. Bring all this to a balance, and the question does not yet seem decided, for obvious reasons.

H. Dalton, Esq. at Knaith, has had new Leicester for two years past ; sells the wethers at two shear, 48s. to 50s. Last year his culls at 50s. He finds that the new Leicester sheep do not *clot* their wool so much as the Lincoln. He has given wethers oilcake while on turnips, 1 lb. each *per diem*. They did well, and fed more profitably than they would have done on turnips alone.

Whenever sheep have cake given them in this part of the county, it is in troughs in the turnip field.

About Normanby, Burton, &c. the new Leicester has been introduced six or eight years ; and have made yet no great progress : they may be said to be only coming in. The old breed was considerably larger than the new ; the wool much longer, and heavier by 2 lb. The great advantage urged is, that the Leicester can be got off shearlings, whereas the Lincoln require to be kept to be sheared twice, and to be in full perfection thrice. The Leicesters are finer grained mutton. It is asserted, that they are also kept rather thicker on the land. The system here is a flock of breeding ewes, and to fatten their own wethers. William Potton thinks that he can have as much wool per acre from the Leicester as the Lincoln. Mr. Robert Holdgate thinks that the Lincoln sheep pay well for being kept till three shear.

Mr. Sutton of Walcot, and a relation, carried wool to Wakefield market ; his relation the Lincoln breed, himself the new Leicester ; the Lincoln fleeces 8 ounces 1 dram more per fleece ; but his sold for  $2\frac{1}{2}d.$  each more money.

He clips 500, having 200 breeding ewes, 10 to 15 die an acre.

200 lambs.

100 shearlings.

100 two-shear.

Sells 100 wethers two-shear; loses 50 or 60 every year; full bred sheep are here very rare, for they are merely coming in.

Never give turnips to tupped ewes, and the stock in general eat but little hay, merely in a blast, as it does but little good; the lambs and shearlings have turnips. An acre of good turnips will keep 10 sheep from Martinmas till Lady-day.

Mr. Skipwith of Alesby tups 1400 ewes.

Mr. Goulton of Alkborough, has 103 ewes, 137 lambs; clips 310; and has 207 shearlings and two-shears, and 3 rams. He sells his wethers fat, at two-shear, as soon as clipped; ewes and culled wethers this year at 45s.; last year 40s.; the year before 34s.; average 40s.; two fleeces 12s.; in all £ 2. 12s. a head; there is very little Leicester blood in them: his wool 77½ tod, at 21s.

Mr. Graburn has a flock that have been four years crossed with Leicester: finds that they are more thrifty; used to sell his shearlings lean, two years old, but now sells them fat; used to sell in April in the wool at 25s. old breed, no Leicester blood;—now has sold at 36s. to 40s. the same age; average and old breed, ten or twelve years ago, 25s. to 30s. Does not find them tenderer in winter than the old. No difference in number on the same land. Old breed gave 6 or 7 lb.; the new the same; but Mr. Graburn keeps better now than he did before. Some persons have cake-fed sheep while on turnips, and they thrive exceedingly well.

Mr. Graburn has seen the flukes of rotten sheep on water-cresses in March, which he remarks as a fact which may lead to a right theory of that distemper; for

by similar observations of other plants, the same thing might be found.

Mr. Goulton of Bonby thinks that the new Leicester will come to sale sooner than the old Lincoln, and are likely to answer better ; but that they will not bear cold wet land so well in winter as the Lincoln, nor will they after shearing bear either hot or cold weather so well.

George Uppleby, Esq. of Barrow, was in the Lincoln breed for six or seven years before he took any cross of Leicester ; during that period he sold his wethers at three shear, soon after clipping, and so as they came fat through summer ; sold at from 30s. to 35s. getting at the three clippings 27lb. of wool, or 9lb. yearly ; some of them two to a tod. Since he has been in the Leicester he has sold the produce fat at two shear, at 40s. on an average ; getting as the two clippings 14lb. of wool.—It is always in such comparisons to be recollected, the rise in the price of sheep which has in general taken place. He is also clear that, in his opinion, he can keep 5 Leicesters where he before kept 4 Lincolns ; and further, that upon the worst land he has, the Leicesters have done better, that is, have resisted hardships better than the Lincolns. Sells them sometimes at Rotheram, where graziers buy them to carry on further. Mr. Uppleby thinks, that if his farm consisted of better land, any thing like marshes near Boston, that it might be more profitable to keep his sheep longer, and also to have a larger size ; but that upon such a soil as his, the quick return of Leicester is more beneficial. In respect of wool, Mr. Uppleby is clearly of opinion, that if you will have a very weighty fleece of wool, not taking into account exceptions which will now and then happen, that you cannot have such a fleece from a well made carcass ; not that wool need be entirely neglected, for he has observed that for three years past, the



Leicester men have provided some rams, carrying more wool than before common with their breed in general.

Mr. Skipwith 1000 guineas this year by rams.

Lord Yarborough puts 450 ewes to tup; has 216 ewe lambs, and 226 wether; besides which he has 213 shearling wethers (*beeders*), and 196 *gimbers*, 123 culled ewes. Has sold 100 two-shear wethers at 46s. His whole flock 1068.

Upon the much agitated question in this county of the comparative merits of the old Lincoln, and the new Leicester sheep, I wished to know of Mr. Dickenson of Brocklesby, what appeared to him from the opportunity his situation, as steward upon so large a property, gave him of forming ideas from the conversation and characters of the farmers as careful or sanguine men: and he said, that many farmers, who are supposed to manage very much to their advantage, are clearly of opinion, that the new Leicesters are not so profitable as the Lincoln; and this from some, who have tried the Leicester. Their system is this, according to Mr. Richardson:

300 breeding ewes.

300 lambs doubles making up for loss.

4 rams.

145 wethers.

145 *gimbers*.

} shearlings.

To sell every year,

100 *drape* ewes at Michaelmas.

145 shearling wethers; turniped by many, and sold in the wool, as store sheep at Boston.

Drapes sold on the average of the last three years at 25s.; before that, at 15s. 6d. Wethers for the last three years, 36s. 6d.; before that 28s. This will be the way where there is much Lincoln blood left; for few that have much Leicester sell stores, but fat, within two months

after clipping. Mr. Richardson thinks, that if a man can fatten at an early age, he should breed all Leicester blood. But if so circumstanced as to be able to keep them till three shear, by means of marshes, then the true Lincoln ; or if with a small mixture of the new Leicester, not worse. The graziers prefer the Lincoln breed, and declare so openly. He does not think, that upon the same land more sheep are kept because of Leicester blood, though some will say so. In point of wool, the full bred Leicester sells at 1s. a tod more than Lincoln : for weight, 3 Lincoln to a tod, and 4½ Leicester. The latter breed is found much more liable to the fly, so that they are kept in caps, but not the Lincoln ; at first shearing also, some have flannel jackets. They are also objected to for not being so hardy as the Lincoln, from thin pelts and less wool. Lincoln tups men give high prices in Leicestershire, it is said so high as 200 guineas by Mr. Skipwith, who lets, as report goes, last year to the amount of 1000 or 1200 guineas.

Mr. Richardson, sixteen years ago, sold shearlings in April at 18s. Last Michaelmas he gave 30s. 6d. for drape ewes ; and sixteen years ago sold his own at 8s. 6d.

Calling on Mr. Edlington at Cadney to view his Lincoln breed of sheep, having been often informed that he held the new Leicester as a breed much inferior ; I was informed by a butcher who happened to be there, that Mr. Euston at Manby near Brig, sold 40 two-shear Lincolns of pure blood, in June, as soon as clipped, half at £ 2. 12s. 6d. ; and the other twenty in August, £ 3. each ; which was mentioned as a proof that the old Lincoln would come to a great value at an early age. Mr. Edlington has bred his flock by hiring tups from the men supposed to have the pure Lincoln blood, such as Mr. Onnley and Mr. Dun of Holderness, Mr. Preston by Louth, Mr. Chaplin at Tathwell, and Mr. Johnson of Kermond. He sells at two and at three shear ; two shear as soon as

clipped as high as 50s.; three shear, to £ 3. 3s.; these prices for a few; but in general two shears at 42s. with some three shears among them. For wool, he runs, at an average, three to a tod; some two, some three, and a few four. He informed me, that Mr. Johnson at Kermond, kills at both Castor and Lincoln, and beats the new Leicester in weight at the same age. He complains of Mr. Bakewell buying of him the ugliest, worst Lincoln tup he had at the time, and shewing it as a sight at Dishley. This anecdote, however, proves that Mr. Bakewell considered this as a good shop to get Lincoln blood *for his purpose*. It cuts both ways; if it is said, that Mr. Bakewell would go on such an errand, where he could find the worst; then it may be replied, that if the worst will do, what is here noted, what would the best come to? Having examined the tups, and adjourned to Mr. Edlington's tankard, and discoursing on the two breeds, he dropped the observation, that if he bred for feeding only, and let no tups, he would have *a little touch* of the Leicester.—How so, Sir, when Lincoln will come to such prices at such an age?—*Why, they will feed a little bit quicker, and run a little bit thicker*. If this is so, he is breeding sheep to answer some purpose not well understood by those who hire them. But I must suspect, from the countenance of some of his lambs, that he has, some how or other, already got *a touch* of the Leicester.

Mr. Mallis of Lumber, this year sold 100 shearling Leicesters, in April, at 50s. each, having drawn a score at 36s.; these were all in the wool, and had had only turnips and grass. Never sold Lincolns higher than 39s. The first fleece, Leicester, 8½ lb. I asked his opinion in general, and found him wholly for Leicester.

Mr. Lofft of Marsh Chapel, five years ago, clipt from Lincolns 12s. a head.

Mr. Lloyd of Belesby, was in the Lincoln breed, for

twenty-seven years: has had new Leicesters for seven years, and thinks them much the better. Keeps one in six more on the same land; but admits, that not all this is breed; as the land is improved; but on breed account cannot reckon on less than one in seven. He sells the wethers fat at two shear, in harvest, and all gone by Michaelmas; and he did the same when he had Lincolns, which were not more than 20lb. a quarter; his Leicesters, 18 to 24lb. a quarter, and fatter than the Lincolns. Both breeds four to a tod; so no difference in wool. This year he had fleeces from 5 to 15lb. The Leicester breed is much hardier; some few individuals excepted, that are deficient in wool. Even on wet land, there is no difference; and will be in condition much sooner than Lincoln. They have also less offal; in tallow equal; and the wool a higher price. And he is of opinion, that in all these points he should think the same if he was on very rich land. He hires tups of Mr. Skipwith, and lets himself up to 10 guineas. He has not observed them to go barren more than other breeds; tupped 400, and had only 9 missed. He sells his wethers, on an average of the three last years, at 45s.; some as high as 50s.; and he divides in supposition the 45s. in this manner:

Leicesters at six months old, worth	-	14s.
———— at twelve ditto	- -	22s.
———— at twenty-eight ditto	-	28s.
———— at twenty-four ditto	- -	35s.
———— at thirty ditto	- -	45s.
———— and, if kept to thirty-six, would be		50s.

But if sold at a younger age than he does at present, he would make them worth more at those ages. Mr. Lloyd feeds sometimes with chaff and corn; observing, as I remarked, a parcel of troughs, that it would sometimes be necessary;—but this he did not when he had Lincoln.

Mr. Skipwith of Alesby, has been in the new Leicester breed twelve or thirteen years; and had been a Lincoln tup man sixteen years before: he prefers the new Leicester greatly; they feed quicker, have lighter offals; less wool per head of wethers and hogs; but the ewes equal to Lincoln; and upon the whole yield more per acre, as he finds by his tod bill. The flock through, about 7lb. on an average; the Lincolns about 8lb. In winter they do not shrink like the Lincoln:—the flesh is firmer, and endures better, and this even on wet land and bad keep; and they bear driving much better to market, to either London or the Yorkshire markets. In point of time of selling, his Lincolns went within three weeks of the same age, but the Leicesters fatter: he runs them also thicker on the same land, keeping five instead of four. Sells fat wethers at two shear as soon as clipped; from 15lb. to 40lb. a quarter; average perhaps (but quite uncertain) 20lb. In a word, he has no doubt of the superiority; and if he bred only to feed, without letting any tups, should adhere to this breed. He gets more than a lamb from every ewe tugged, on an average, on 1300 ewes. He used to lose many Lincolns in lambing, from the size of the head and legs, but the Leicesters come much easier. He lets rams from 5 to 50 guineas. His drake ewes he sells at Michaelmas, the lambs having been weaned at Lammas: last year none under 40s.; some he knocks out the teeth, and puts them on turnips to eat the tops, and all gone by Christmas. This custom is common, but not too humane. Of Mr. Skipwith's sheep I did not see the best, for his shearling tups were not at Alesby; I saw some three, four, and five shears. Inquiring into the support in spring, I find they depend on turnips till the grasses are ready, and are consequently often much distressed: Mr. Skipwith observed that it is necessary to give corn.

At Humberston, all breed sheep, and are getting fast into the new Leicester. Mr. Tomlinson thinks, that the race formerly more common in the country, with a larger bone, more wool and bigger in size, were a better breed, and more advantageous; his expression was, *there is more pride than profit in the new sort*. At Humberston, Waltham, Scarthe, &c. they sell their lambs at Michaelmas, or hogs in the spring; but down in the better marsh land they keep till two or three shear. Here they say, they have not land good enough, saying, that they are forced to sell their *breeders*, and joist their *sheeders* in the spring; and besides this, buy turnips, and run their ewes thin on the ground, as the east winds in spring cut them very severely. Sell the lambs from 10s. to 20s.; hogs in spring from 24s. to 28s. in their wool. Mr. Bee thinks a mixture of the new Leicester good, better than all Lincoln; but with the caution of not taking too much. Ewes give 7 to 11lb. wool; but the Leicesters 2lb. less than Lincoln, nor is the wool better. If any thing, they are run rather thicker on the land; one in ten for instance; but they are of a smaller size.

In discourse with Mr. Philipson, butcher and grazier at Louth, he gave his opinion, that the best stock was half Lincoln, half Leicester; this cross better than all of either.—That the Leicester fed quicker, and had lighter offals than the Lincoln; and that the cross of half and half tallowed well; he thought as well as the Lincoln.—That in respect of hardiness he found no difference; for though the Lincoln had the thicker pelt, and more wool, the thicknets and snugness of frame of the Leicester made amends. Mr. Blythe, butcher of the same place, was more cautious of giving his opinion, he seemed to recollect too much of Bakewell's conversations at the Blue Stone; and imagined, I apprehend, that if a stranger

came with questions, they might be put from some interested motive ; he was, however, very civil, and I afterwards found him very intelligent. Another butcher I met with at the same place, was of opinion, that the Lincoln was the better breed, the meat as good, and as good a price, and much more tallow ; and thought, that if a Lincoln and a Leicester of the same live weight were killed, the former would yield more money.

Mr. Pearson at Haffham near Louth, clipped above 100 tod of wool from 100 shearlings, and 100 two shears ; these sheep were bred by Mr. Paget of Ludborough, true Lincoln ; and they were sold fat out of their wool at 42s. ; this was when mutton was 4d. per pound ; 26lb. a quarter.

Mr. Hyde of Tathwell, bought about 70 acres of marsh, and took the stock upon it, which were new Leicester sheep, to which some Lincolns were added, in the same condition ; they were all taken away together, clipped, and sent to Smithfield, and the Lincolns sold for 4s. a head more than the Leicesters, and yielded 5s. a head more in wool. Mr. Hyde's ewes tod threes : his wethers twos and threes.

Mr. Whitworth of Cookswold near Louth, informed me, that in the rich marsh land the graziers prefer Lincolns greatly ; so that when he has been there to sell sheep, he has been asked, if any cross of Leicester ; and on his replying, none, they have said, if there is any Leicester blood in your flock, let it out as soon as you can. This gentleman's farm is like his immediate neighbours, who are in the Leicester breed, and he is confident, that they do not keep more on a given space of land than he does of Lincolns ; and the weight of their wool is to his as 7 to 10.

About Louth they are in the common habit of giving

oats to their sheep in the spring, in case of turnips failing or running short. Mr. Allanby gave oats to 1000 ewes last spring, when turnips were done.

Mr. Clough of Gayton near Louth, puts 400 Lincoln ewes to tup, which bring him 370 lambs on an average; and he draws off 75 drake ewes at Lammas, and he keeps 120 shearling ewes to supply their place, and that of losses. Clips 480; that is, 360 ewes, and 120 shearling ditto. His lambs at Michaelmas go to his marsh farm at Alderchurch; but would then sell at 23s. to 30s. the price of this year, and the last; but before that usually at 20s.; five or six years before that, 12s. to 18s. Lamb hogs in the spring last year were worth 28s. to 40s. at Boston fairs; bought by marsh men. His flock teds on an average half threes, half fours. His shepherd has £20. a year, a house, a cow and pig, and land for potatoes. For his farm, of 450 acres, with a flock of 500 at turnips, 100 acres of that root should be provided, upon middling and bad soils. Nothing pays like breeding sheep; beasts never answer here on land that will do for sheep, only on low rushy land that will rot sheep; yet they must have some to tread their straw into muck.

Mr. Hyde at Tathwell, without reckoning his marsh farm, (which it may be supposed is considerable, as he fattens 500 wethers, and 70 beast annually, clipping 1150 sheep in all); puts 400 ewes to tup of the *true Lincoln breed*, no Leicester blood, which rear 360 lambs. The farm 450 acres, over which sheep ever go. Send the lamb hogs to the marsh in May; could have sold them last year at 35s. Sells fat at two-shear from April to October, some from 55s. to £4.; some culls at 42s. to 45s.; the year before not so high. For three years before, the best marsh sheep £2. 2s. and were as good as 55s. now. Clips half threes, half fours. Respecting the superiority of the Lincoln to the Leicester breed, supposing each thorough



bred, it is, in wool 4 lb. per fleece, the Lincoln rising to 11 and 12 lb. if in good condition. In weight of carcass, the Lincoln will beat by 2 lb. a quarter in two-shear wethers, and at three-shear the superiority will be 5 lb. a quarter. In point of losses there will be no difference, nor in ewes going barren, nor in distempers. In tallow at three-shear there will be 6 lb. difference in favour of Lincoln; Mr. Pearson thinks more. In running number to acres, no difference. Hogs sold at Boston in May, Lincoln superior, being more saleable. In hardiness, on bleak hills and wet soils, the Lincoln will beat. The Leicesters must have sheds to run in, and jackets to cover them after shearing, a thing never heard of with Lincoln. Mr. Clough thinks the Leicesters lamb easier; Mr. Hyde thinks otherwise; and Mr. Pearson of Haugham agrees with him. Mr. Hyde assured me, that if his farm was on the very poorest soils there are on the Wolds, he would keep all Lincoln breed, and no Leicester blood, equally as on the richest land; for if a farmer is forced to sell lean and poor, Lincoln will certainly beat Leicester. Mr. Hyde seldom corn feeds, unless turnips are rotten or snow deep. Last spring he gave oats; Mr. Pearson and Mr. Clough, both in Lincoln breed, gave none. I had much pleasure in viewing Mr. Hyde's tups, examining one by one, I believe three or four score of them; but all two, three, four, or five-shear: I saw no shearlings. They are by far superior to any Lincolns I have yet seen. Mr. Hyde has had them but two years; but the old shepherd, who has been on the farm thirty years, under Mr. Wall and Mr. Chaplin, assured me, that there was not one drop of Leicester blood in any that I saw. Many of them have very thin pelts, full fore flanks and chines, and for their size, small bones. Mr. Hyde lets great numbers. I should give a more particular account of them, but I wish Lincoln breeders, in a question so much disputed, to speak for themselves, which will

be more satisfactory to the reader, than my personal opinion. It is proper to add to this account, that a few years ago, before Mr. Hyde took Mr. Chaplin's stock, he made an experiment of a cross of the new Leicester; and it was from the result that he has since been so decidedly in favour of the Lincoln breed: from the same land he had less wool, and less mutton, and therefore went back to Lincoln.

The wold farmers have very generally pieces of marsh, which are overlooked by men who live there, called shepherds, who look at the stock twice a day, and for a few weeks before clipping, thrice; they are paid 1s. an acre. Much attention is necessary when heavy in wool, as the sheep are often found on their backs, and if not soon relieved, die. This is called *far wel tard*, or *lifting*, and they have dogs that will turn them. With Mr. Neve, in travelling to Alford, a dog of this sort *lifted* 21 sheep in the way.

Distempers in the Marsh.—1. The sturdy, or bladder on the brain. There is an old fellow near North Somercots, who trepans for it, and saves as many as he loses. He raises the skin with a sharp strong hooked knife over the spot affected, about the size of a crown piece; he then raises nearly the same size of the skull bone, letting the piece hang as by a hinge on one side, then with a quill cut slanting to a point, like a spear, and barbed on each side, he fishes in for the bladder, and brings it out whole, putting down the bone again, and covering with a plaster. He has 2s. 6d. if he succeeds; if not, nothing. 2. The *meag* runs, or rickets, incurable. 3. The *rubbers*, a sort of itch; they rub themselves to death; no cure. 4. The *scab*; mercurial ointment; used to give 5s. a score for all infected, or likely to be so; now cheaper. 5. The *respe*; probably the red water, not peculiar to sheep feeding on cole or turnips; for they have it on grass feeding in the spring, when thriving fast. 6. The *rot*; very little here; in rotten years, the

sheep that feed on the salt marsh, over which the spring tides come, sell very high, in confidence that they are safe. Upon this disorder it well deserves noting, that a shepherd, who when young was shepherd's boy to an old man who lived at Netlam near Lincoln, a place famous for the rot, told Mr. Neve, that he was persuaded sheep took the rot only of a morning before the dew was well off. At that time they folded, being open field ; his master's shepherd kept his flock in fold always till the dew was gone, and with no other attention his sheep were kept sound, when all the neighbours lost their flocks.

It is observed in the Marsh, that nothing makes wool grow so fast as feeding upon oilcake.

In regard to the new Leicester, Mr. Neve, from all he has observed in the Marsh, though he is of opinion that the breed feed kindly, and have great merit, yet wool is an object of such importance in the scale of profit, that it must not be lost sight of. When that is 9s. or 10s. a tod, the breed would probably be the best, but not at the present prices.

Mr. Bourne of Dalby is one of the most distinguished tup breeders in the county ; his flock :

Breeding ewes - 900

Tups - 150 ; lets upwards of 100.

Clips about 2400 : lambs as many hogs from turnips the succeeding spring, as ewes put to tup ; consequently the number of lambs considerably exceed that of ewes.—But say,

900

Shearlings losses 5 per cent. 855 { half sheeders.  
425 sheeders { half heeders, except  
the reserve of rams.

of which 350 to ewe stock, and the remainder sold with the drape ewes.

# OF LINCOLNSHIRE.

331

Heeders	-	-	-	-	425
Five per cent. loss	-	-	-	-	21
					<hr/>
					404
Of these, to add to rams instead of 70 draped off or worn out.	-	-	-	-	70
					<hr/>
Two-shear wethers	-	-	-	-	334
					<hr/>

Of these, 150 to London in autumn, fat ; the remainder clipt early in the spring three-shears, and sent also to London.

## Annual Sale.

150 two-shear wethers, sold in au-	s.			
umn or winter for 1794, at	-	44		
1795, at	-	48		
1796, at	-	50		
		<hr/>		
		3)142		
		<hr/>	£.	s. d.
Average	-	47 4	355	0 0
		<hr/>		
150 three-shear wethers, 1794, at	-	45		
1795, at	-	48*		
1796, at	-	62		
		<hr/>		
		3)155		
		<hr/>		
Average	-	51 8	387	11 0
		<hr/>		
Carried forward	-		742	11 0

\* After the severe winter wool only gained.

			£.	s.	d.
Brought over	-		742	11	0
300 drape ewes ; 100 of the best fattened at home, sold at London	s.				
the succeeding summer, in 1794, at	34				
1795, at	38				
1796, at	40				
		3)112			
Average	-	37 4	186	13	4
200 at 20s.	-	-	200	0	0
50 old rams at 40s.	-	-	100	0	0
Wool about 750 tods, price	s.				
1795, at	20				
1796, at	22				
1797, at	20				
		3)62			
Average	-	20 8	768	15	0

Rams about 700 guineas ; of course will vary much ; but in an account of this sort they are only to be reckoned as the very best wethers of the flock ; say, therefore, 100 at 52s. 6d.	-	-	262	10	0
50s. per breeding ewe	-	-	2260	9	4
19s. per head clipped.					

The flock has generally about 140 acres of turnips ; and about 100 tons of hay. Seldom grows seeds, has none at present, what is laid not being to be ploughed again ; and in all about 1400 acres, wood excluded, of which near

1000 are grass, and the rest arable; upwards of half of it indifferent land, and keeps, besides this flock in summer, 160 head of cattle, and in winter 110, besides near 60 horses of all sorts and ages.

In relation to Mr. Bourne's breed of sheep, it is neither new Leicester nor old Lincoln, but a mixture gradually formed with much attention by his grandfather, his father, and himself, from many improved kinds, particularly the Durham, the new Leicester, and the old Lincoln; the objects he has had in view have been size of carcass, and length of wool; and in these respects, the breed is generally admitted to be of great merit, as indeed may easily be supposed by the request his tups are in, for he lets from 5 guineas to 50, and has more than once had a greater demand than he was able to supply. And for wool, five fleeces of two-shear wethers; that is, the second clipping, will weigh 2 tods, 29 lb. or above 11 lb. a head. Of the portions of each sort of blood it is difficult to be exact;—of the pure Leicester blood, the nearest approximation has been by a Leicester ram, but bred in Lincolnshire, covering not more than ten of his own ewes four or five years ago; but is not sure that he was a full bred one, as he came from Lincolnshire only. The Durham blood has not been renewed of twenty years or more. Mr. Bourne has more than once used a ram half Leicester; but upon the whole it may be concluded, that this flock has vastly more Lincoln blood than any other; and from the general colour of the information which has been gathered from various facts and observations, he is of opinion that the breed thus formed has such a degree of merit, that he has no reason to wish a change upon any other system than what he has pursued. In ease of lambing, he does not sustain such losses as makes that an object to consider particularly. In hardiness he is well satisfied; he

generally has 8 or 900 lambs on turnips, and they all run in one fold, which he conceives to be a proof of it, as they are never allowed any fodder, except in cases of absolute necessity, such as intense frosts, or heavy snows, when a little hay is given; they have very rarely run to corn stacks on such occasions; does not feed his ewes or tups with corn; the latter have a little hay with their turnips. He has been very free from the *respe*, &c. and on the whole, as healthy a breed as any in the kingdom. And lastly, that to have ewes go barren, is a rare thing with him.

Shepherd paid 12s. a week, a house, and 4 or 5 acres of land, and summering 2 cows; besides a few trifling perquisites, particularly 6d. allowed for every pair of lambs reared to Mayday. Many farmers allow the lambskins; but this, for obvious reasons, much better.

At Partney fair, Mr. Blythe of Louth, had the goodness to introduce me to a breeder of sheep (I am sorry his name is obliterated in penciling), who from 54 ewes of the old Lincoln breed, had this year 72 lambs reared; and 92 fleeces yielded him 33 tod, at 29 lb. per tod, or 10½ lb. each. He has killed ewes that gave suck at the time of killing of 25 lb. a quarter. He has sold drape ewes at 56s. each. I was a little surprised, after such circumstances, to hear that he intended going for a cross to Mr. Johnson of Kermond, to get a change: his reason was the gid, by which he had lost 3 in 60; after deducting all losses, he seemed to have profit enough left for a reasonable expectant.

At this fair, stock sold lower than last year; the highest price given for lambs was 28s. for Mr. Brook's (30s. a year ago). The champions (Mr. Dymock) sold for 25s. 6d. and were the best I saw in the fair; very fine well made lambs in every respect. An observation I

made was, that in a very full fair for lambs, there was very little Leicester blood *clearly apparent*.

At Mr. Bourne's at Dalby, I had the pleasure of meeting Mr. Bourne his relation of Haugh, and Mr. Kershaw of Driby, who are both in nearly the same system of sheep, and their account is as follows: the former took an increase of the Leicester blood in 1792, by which he increased flesh, and lessened wool. Mr. Kershaw half threes and half fours to a tod; Mr. Bourne rather less.

Both are clear that they cannot keep more of one sort upon an acre than of the other, especially in summer, when alone the comparison can be fairly made. Mr. Bourne has had his flock very unhealthy, so that he has received more for skins than common in any flock; and this induced him to change to Leicester. The *respe* had been very fatal to him on turnips, cole, and grass. Mr. Kershaw has had the same disorder; but by taking them out of nights lost fewer. Disturbing alone is serviceable, but not so good as taking out. They sell the 4th of May, two-shear in the fleece: 1797, at 42s. to 50s.; in 1796, at 46s. at a medium; in 1795, lower. Average for three years 42s. 6d. proportioned to which their value would be,

		s.	
At 6 months	-	20	
12 months	-	30	5 per cent. loss.
18 months	-	33	
24 months	-	46	5 per cent. loss.

this upon land at 40s. an acre.

Mr. Philip Wright of Spilsby, has been in the new Leicester breed for fourteen years by tups, but had no ewes except of his own breeding; had been for many years in another cross of Leicester; but much Leicester blood. He says, that if he bred and let no tups, but de-



pended on fairs, and on feeding what he bred, he would equally prefer new Leicester : and he prefers them because they will get fat at an earlier age than the true Lincoln ; he thinks that the new Leicester will be as fat at Ladyday, coming two-shear, as Lincoln will at Lammas. Run as many of one breed as of another on the same land ; 2 an acre in marsh of summer and winter, and a bullock to an acre and quarter, rent 30s. Equal in hardiness and difficulties. Leicesters lamb easiest. No difference in the ewes going barren. The Leicester's run about 3 to a tod ; the Lincolns higher.

Mr. Wright puts 500 ewes to the tup.

Clips 1400, rears 500 lambs.

Sells 100 drape ewes.

30 tups saved.

70 two-shears.

70 three-shears.

50 shearlings.

In 250 heeders, 20 will be lost before coming to market.

Drapes, 1797—28s.

1796—30s.

1795—25s.

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3)83

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27s. 4d.

50 shearlings, 1797—a score at £3. 5s. rest 54s.

1796—56s.

1795—47s.

Two-shears, 1797—£3.—£3. 3s.

1796—56s.

1795—47s.

Three-shear	1796—some as high as	£.	s.	d.
		4	4	0
	Other prices	{ 3	10	0
		{ 3	5	0
		{ 3	0	0
		{ 2	18	0
	1797—	70s.		
	ditto	58s.		
	1795—	55s.		

The 1400 go over about 800 acres, 55 marsh, 40 or 50 of cole and turnips ; gives oats to ewes with lamb ; none to tups ; oil cake never. Lets rams from 3 guineas to 30 guineas. Has gone to Dishley every year from 1784, except one, and has sometimes had 3 or 4 tups in a season. Never jackets any.

If a three-shear, sells for £3. it will be worth,

At 6 months, 28s.

At 12 months, 35s. Wool 9½lb.

At 18 months, 40s.

At 24 months, 48s. Wool 9 lb.

At 30 months, 56s.

At 36 months, 60s. Wool 9lb.

At Boothby, at the Rev. Mr. Wall's, I was on a sort of classic ground, for here were first reared that breed of true Lincoln sheep which afterwards became so famous in the county, under the names both of Mr. Wall (uncle to the present proprietor) and Mr. Chaplin, and which are now in the hands of Mr. Hyde of Tathwell ; there are some very good tups here at present of the same breed.

In the hundred of Skirbeck they breed two-thirds of what is fed in the district ; chiefly the Lincolnshire, but are not very choice in the selection of rams ; it is principally done by little farmers, who tup under 60 ewes. But some few have a slight cross of Leicester

blood, Mr. Linton tups 110 ewes, of the Lincoln breed; he sends to Mr. Bourne of Dalby annually for a ram, which is chosen by himself; and Mr. Linton prefers this breed to those which have more Leicester blood. He reckons the profit of a breeding ewe thus: he rears 115 lambs from 110 ewes; the ewes yield 8 lb. of wool, and the lambs would sell for, at Michaelmas, 18s. each; the surplus will make this 18s. 9d. the wool is worth 7d. a pound, or 4s. 8d.; the drape being worth as much as a lamb there is no deduction; but 2s. a head on the ewes may be reckoned for losses; deduct this from 23s. 5d. and there remains 21s. 5d. for the product of a ewe, four running upon an acre in summer, and the winter feed being made up by following other stock on eddish, and a few cabbages in the spring; a plant which Mr. Linton considers as the best crop he has for the support of cattle and sheep. He sells his wethers in Smithfield, at three-shear, from 45s. to 65s. each; having produced about 30 lbs. of wool. The drape ewes being fatted, sell on an average at 40s. having ceased breeding; the wool worth nearly 20s. a tod at present. A wether thus pays in three years, reckoning the average at 50s. at least £3. 10s. or £1. 3s. 4d. per annum.

At the ordinary at Horncastle, I had pleasure, and, what is better, instruction, in meeting many capital breeders; the conversation presently fixed to the question of sheep, and as opinions differed greatly, I shall note one or two prominent features. Mr. Elmhurst of Stainsby, the chairman, declared, that "he knew no better rule for breeders to attend to, than to have or get such a breed of sheep, as have good and thrifty feeding carcasses; high-standing enough for Smithfield; *properly* lengthy; and, above all, with good, wide, and well made loins. And also never lose sight of, but strictly attend to, *having* and *keeping* a good, long wooled skin upon the whole of their

flocks; and not to lessen the weight and well grown quality of the wool, by running into new-fangled fancies, and be *persuaded* thereto by all the rhetoric and well placed speeches of all the upstart, new-fangled disciples of *any* man."

A better rule by half, replied another breeder, is to breed that sheep which will eat least food, and pay most money for what he does eat.

That breed, rejoined Mr. Elmhurst, must be the true old Lincoln; and remarked, in a comparison of the two breeds of Leicester and Lincoln, that many years ago they had in this country a very excellent old, rough, red potatoe, but from an over eagerness to introduce new sorts, they had so mixed, adulterated, and changed the sorts, that an old, true, honest rough red of the right old sort, was no where to be found; just so it would be with the right old Lincoln breed of sheep, if it was not for such men as himself to resist novelties. The Rev. Mr. Raucliff replied to this, that the admission proved the new introduction to be better, or the old rough red would not have been lost; and if the old Lincoln sheep followed the rough red, it will prove no more than the superiority of the sort that prevails. Mr. Elmhurst then observed, that he had been above 40 years in business, and from that experience preferred the Lincoln breed greatly; he clips many two to the tod, and not many less; sells three-shear wethers at £3. The introduction of the new Leicester he looks upon to be as much a matter of fashion as the ladies' feathers. To which Mr. Raucliff replied, that it was a good matter of fashion which enabled farmers to sell their sheep fat from farms, that never had fat ones on them till they were stocked with Leicesters; and then observing that Mr. Elmhurst himself was not absolutely free from Leicester blood; that gentleman answered, "I come as near to the

Lincoln as I possibly can ; as to pure blood, I know not where to go for it."

Mr. Raucliff of Fallaby is in the Leicester cross, and remarked at the same meeting, that he sold his two-shears the end of May, taking the wool at £ 2. 2s. and that 36s. had been the price for several years ; he produced his tod bill, by which it appeared that 890 fleeces produced 253 tods : and

Here also meeting Mr. Gay of Wragby, I found that he always buys the sheep that have the longest wool, which breed he prefers.

Mr. Whalesby, present also, is of opinion, that more Leicesters may be kept on the same land than Lincolns, and that the difference is rather considerable.

Mr. Bonner, a butcher, being present, and applied to for his opinion, remarked, that he did not consider selling at two-shear altogether such an advantage, for that he would always give more for a three-shear than a younger sheep proportioned to the weights, because he was sure to find a hidden treasure in the older ones. Mr. Gay of Goutby confirmed this, and said that he has long sold two and three-shear for Mr. Vyner, and the three-shear have paid best. So much for a Lincolnshire ordinary.

Mr. Parkinson of Asgarby, who shewed me some good Leicester tups, or rather a cross or two of Leicester, approves the breed on account of their being earlier fat than Lincoln ; but still holds the Lincoln to be an excellent breed, and is of opinion that the great Leicester breeders have bred their sheep *too fine* : from those with fine heads he does not get so much wool as he wishes. What made him originally have recourse to the Leicester breed, was his picking out for his father the largest tup he could find at Mr. Bourne's at Dalby, of the Lincoln sort ; but when the produce came to Smithfield, he observed that

the new Leicesters, which were at market at the same time, did not lose flesh, and sold, a year younger, at as high a price. But at the same time admitted, that a brother of Mr. Johnson of Kirmond, noted the food ate by two large sheep, being shearlings of 34 lb. a quarter, and by two others of 24 lb. a quarter, there was a very small difference, but not near the proportion of their weights.

Mr. Cracraft of Keal keeps 400 breeding ewes, and last year sold his shearling wethers at Mayday, at £3. each, for 80; the rest 50s.; the year before, all at £2. 12s. 6d. except a score, which, at £3. 3s.; all in the wool; and he reckons the annual product of every ewe at £1. 11s. 6d. He is in the new Leicester breed; his drapes, on a medium of the three last years, 27s. each, 130 annually. He clips threes nearly, or above 9 lb.; rears as many lambs as ewes. He clips 800 on his farm, of 590 acres; but keeps, besides, 90 head of cattle, 80 horses, 20 being breeding mares; from 30 to 40 of this stock run in the fen, but to sore loss, for he one year lost 16 horses by the botts, a disorder very common there. He has 200 acres of corn; the stock of sheep is therefore considerable.

Sir Joseph Banks, on the sheep system of this county, gave me a general hint extremely to the purpose.

“As tups are always hired in Lincolnshire by the breeders, the lambs may be said to be purchased before they are born; as a year’s credit, however, is given on this occasion, they are not paid for till the actual value can be fairly estimated; if, therefore, any one who has hired a tup at a considerable price, finds the lambs he has got not sufficiently above the ordinary sort to pay him the difference, with interest, he complains to the tup-man, who generally views the lambs with him, and makes a fair abatement, which is generally settled in the price of the

hire of the next year's tup ; this regulates the price of letting, and makes the tup-men a most useful set of people. The great mass of breeders in Lincolnshire sell their heeder-lambs about old Michaelmas time, or a little after ; a succession of fairs for that purpose are held in a village called Partney. These lambs are resold in the spring at Lincoln fair, under the name of hogs ; at Midsummer their owners clip, and then winter them ; the succeeding spring, they are carried to Boston, where, in a long succession of markets, they are sold to the graziers, with their wool on, under the name of shearlings, and immediately turned into the marsh to fatten ; the graziers take their fleeces, and having wintered them, get the kindliest to Smithfield in the course of the succeeding spring ; those that do not fat so easily, yield the grazier a fleece at Midsummer, and are got off the ground in the course of the next autumn. Here you see a combined system of sheep agriculture, for as the animals are eternally either changing hands, or yielding fleeces, they make a return of some kind or other to their owners nearly half yearly from the time of their birth, to that of their final dissolution at Smithfield."

*Estimate by Mr. Parkinson.*

Sheep in 1781, 2, 3, 4, 5. An acre of land, worth 20s.						
1st. An acre keeps 2 ewes, and	£.	s.	d.	£.	s.	d.
produce 2 lambs, 12s.	-	1	4	0		
2 Fleeces, 4 to tod, 10s.	-	0	5	0		
					1	9 0
2d. 2 Lamb hogs bought in 18s. kept						
one year, sold again at 26s.	-	0	16	0		
2 Fleeces, 3 to tod, 14s.	-	0	9	6		
					1	5 6
Carried forward	-				2	14 6

# OF LINCOLNSHIRE.

343

	£.	s.	d.	£.	s.	d.
Brought forward	-	-	-	2	14	6
3d. Graziers buy said shearling at 26s.						
sold at 28s. 2 of them; profit by						
carcass	-	-	0 4 0			
4 Fleeces, or 1½ tod wool, at 12s.			0 18 0			
				1	2	0
				3	16	6

Profit by beasts and horses nearly the same as below; to be bought in April, grazed the summer months, and sold out in the autumn

Sheep, 1794, 5, 6, 7, now worth 30s. per acre.

One acre of land, of the best average pasture in the county of Lincoln, will keep and produce as follows, according to these present times:

1st. An acre keeps 2 ewes, produce						
2 lambs, at 24s.	-	-	2 8 0			
Sell at Michaelmas and 2 fleeces, at						
the rate of 4 to a tod	-	-	0 9 0			
				2	17	0
2d. 2 Lamb hogs bought in at 34s.						
kept one year, sell out again,						
shearlings 50s. profit 16s. makes			1 12 0			
2 Fleeces, 7s. each, suppose 3 to tod			0 14 0			
				2	6	0

N.B. If clipped again before sold, would be 14s. more.

3d. Buy said shearlings at 50s; sold						
3 shearlings out again, about 56s.						
profit of 2 sheep	-	-	0 12 0			
4 Fleeces of wool, about 1½ tod, 19s.			1 8 6			
				2	0	6

N. B. Every 2 acres of this sort of land is supposed



to fatten a small heifer, and leave a net profit of about 50s. in each acre, 25s. added to the mean of

$$\text{Sheep profit} \left\{ \begin{array}{ccc} 2 & 17 & 0 \\ 2 & 6 & 0 \\ 2 & 0 & 6 \end{array} \right\} 7 \quad 3 \quad 6 = \text{to } \underline{2 \quad 7 \quad 6}$$

Besides extra summer keeps for horses, &c. 2 12 6

N. B. It is always understood in Lincolnshire, that all sorts of grazing occupations should pay two years rent, and rabbit warrens the same. But arable farms ought to produce three years rent.

[illegible]

Mr. Thomas Tannard of Frampton, near Boston, is one of the greatest graziers in Lincolnshire, he feeds above 100 oxen, and clips 1400 sheep ; his growth is 600 tod of wool ; but this year 1852 fleeces gave 768 tod ; and his capital per acre may be estimated at £30. ; some years it will be less. His opinion is decidedly in favour of the true Lincoln sheep, which he sells at three-shear at £3. 10s. and to £4. a head. He has about three sheep per acre in summer and two in winter on his land. One superiority of the Lincoln breed which he remarked, was that they travel much better to London ; and as to keeping more Leicesters than Lincolns on the same land, he observes that he has had both, and keeps as many of one as of the other.

Mr. Tannard favoured me with some particulars of the progress of prices, which well deserve minuting. He has a manuscript note of the year 1716, which runs thus.—“In the 1716 my father sold 366 tod of wool to John Aggs, at 22s. 9d. per tod ; and in 1717, 367 tods, at 27s. and one guinea over ; and in 1718, 373 tods, at 27s. and a guinea.” This was by Mr. John Fotheringham of Holbeach : it is curious ; let the attentive reader consider the advance which has taken place in mutton, and in every product of the earth, wool alone excepted, in manufactures, and in all other objects of consumption or export, and then ask, why a *fall* has been experienced in this only article ; what can be the cause ? It is answered in a moment ; wool is the only object of export restricted to a set of abominable, cruel, and barbarian laws, which fetter it in the manacles of a monopoly unknown to any other raw material in this kingdom.

In 1782, Mr. Tannard bought wethers at 15s. ; in 1796, at 46s. the weight equal. In 1782, drapes at 8s. 6d. and wool 452 fleeces, 177 tod, at 8s. In 1797, 120 fleeces, 50 tod, at 20s.

The late Mr. Berridge, brother to the Rev. Mr. Berridge of Alderchurch, stated an experiment comparing the two breeds of sheep, the Lincoln and new Leicester, which deserves minuting; Mr. Linton also recited the circumstances. He drew off 20 of each breed, the late Mr. Codd of Ranby choosing 10 Leicesters from a lot, against 10 Lincolns; they were directly weighed alive, put into the same pasture, and killed at the same time; were of the same age, being shearlings; the difference in weight at that time very little; the 4th of May they were weighed again, and the increase nearly equal; one of each was killed. At Michaelmas again, and the best and worst killed, when the Lincoln had a little advantage. The 11th December two more were killed, when the Lincoln had gained more upon the Leicester. That time twelve-month, in December, the increase of the Lincoln was far more considerable; the expression used to me was, "beat the Leicester hollow." This experiment deserves attention, though the written minutes of it were not to be produced; it was known by many gentlemen from the commencement to the end, and by several present when this account was given me.

Mr. Loft of Marsh Chapel—The late Mr. Codd of Ranby about 16 years ago having been possessed of a very fine flock of old Lincoln sheep, made the change to new Leicesters, by going to Mr. Bakewell, and continued with him till he changed the mode of letting, to make the hirers bid; he then went to Mr. Stone, and thus has bred from very capital stock for many years. The flock at present consists of

450 breeding ewes.

Clips 1800 as he buys for marsh land.

Sells the wethers three-shear, beginning a week after old Lady-day, and all gone by the end of July this year, at £3. each; in 1796 the same; in 1795 lower. In 1782

Mr. Loft sold his own at 25s. ; in 1783, 28s. ; in 1784, 31s. 6d. ; in 1785, at 34s. ; in 1786, at 37s. ; then 40s. 42s. 45s. and 52s. 6d. to 55s. ; in 1796, at 54s.

Mr. Codd's at present,

Lamb at 6 months, 25s.

12 months, 30s. in the wool ; 9½lb.

18 months, 38s.

24 months, 48s. in the wool ; 12lb.

30 months, 50s.

36 months, 60s. naked ; wool 14lb.  
at 8d. or 9s. 4d.

Breeding ewes, clip two fours to one three.

Will rear, to Michaelmas 100 lambs from 100 ewes.

This weight of wool may appear great ; let it be observed, that Mr. Loft and Co. have sold 1100 tod of wool from 2400 acres of all sorts of land, corn, &c. included, which shews how productive these sheep are in wool. In running them on the land, he thinks, as breeding, they are thicker on the land than Lincolns, in the proportion of five to four ; but in feeding, stocked the same as the others on grass. But the Leicesters are off in July, and the Lincolns on the same land, will not on an average be gone till October ; thus the difference may be estimated at three months, and yet not make more money, nor so much, mutton sinking in price after many of the Leicesters are gone. In respect to health and distempers, the two breeds are the same ; but if an accident happens, the Leicesters being fat, and the Lincolns not, the loss is greater with the latter. In respect of hardiness, Mr. Loft finds his breed as hardy as any in the county can be, and have never failed in any respect ; nor has he ever put them in jackets, though it might be useful to any sheep. The great losses are in hogs from 6 months to 15 months, and principally by *the respe.*

Mr. Loft prefers Leicester with a great weight and good quality of wool, to such as have lighter fleeces: and his reason is, that the wool will be heavier than from finer Leicesters; but no other motive. At the same time he also observes, that with the weight of wool comes a little addition of bone, which is a disadvantage.

Mr. Corrington of Horncastle, partner with Mr. Loft in the farm at Ranby, informed me, that last Boston mart Mr. Ingram, a butcher there, killed five three-shear sheep, which were shewn as very extraordinary ones, of the Lincoln breed, which produced 17 lb. of wool the last fleece; grazed by Mr. John Bartholomew of Freiston, and by Mr. Thacker of Langrike Ferry; the former having bought them lambs at Lincoln fair, and sold them to Mr. Thacker, who fattened them. They were very fine, but Mr. Corrington has proof, that they were got by a tup of Mr. Codd of Ranby.

Mentioning to Mr. Loft the objections I had heard from some very considerable graziers, to the new Leicesters, he remarked, that there is always a distinction to be made between men who buy, and those who breed; to buy cheap is a great object, but it is not to be concluded that the best breed are to be bought cheapest. The true knowledge of a breed is only to be had from those who fatten the sheep they breed. There is something in this, but not enough to be conclusive.

After Mr. Loft had been ten years in the Leicester breed, he sold a sheep at three-shear, that had given 19s. 7½d. in one fleece of wool; but Mr. Kelk of Postland grew a Lincoln fleece that sold for 22s. weighing above a tod.

Mr. Cunliff of Lancaster, a very considerable wool buyer, I met at Ranby, thinks that the average of the fleeces of all Lincolnshire, is about 9 lb. He remarked, that Mr. Chester of Tointon grew beautiful wool; and

Mr. Ostler of Alesby the same. Kirkby very fine, but that of Revesby uncommonly fine, better perhaps than any.

Mr. Blythe, senior, of Louth, is a friend to the new Leicester breed of sheep, and made a curious observation on increasing the wool by fresh crosses, after getting into that breed. If you add 2 lb. of wool, you lose 2 lb. a quarter in the carcass ; for much wool will have a thick skin, and takes more feeding than a well made carcass. I read this note to him after I had written it, and he assented to the accuracy ; it was at a moment when I could not prolong the conversation, or he would probably have explained himself to mean, that the loss *in general* would amount to that in profit, but not in any particular sheep ; as the long wooled ones are of a larger size, upon the whole, than the Leicesters. He has been forty years in the wool stapling trade, buying 20,000 tods annually, and thinks that one-fourth of all the sheep clipped in all the county are threes ; and three-fourths, fours ; and he thinks that all such parts of the county as he is acquainted with yields, on an average of all sorts of land, 1½ fleece per acre.

Mr. Smith of South Elkington,

Breeding ewes	-	800
Clips	-	1600

Upon 1600 acres, 200 of which marsh.

Sells the wethers at two-shear ; some fat, some lean to those who fatten on turnips.

The fat two-shear at 44s. in October.

Run all together, ewes and all, four to a tod, 29 lb. Has got a cross from Ranby, because he thinks that he shall get them fatter at the same age ; and expects to run one in ten more on the same land. Whether he will lose in wool he does not know yet, but expects finer wool. In hardiness and distemper supposes the same ; but expects fewer losses in lambing.

Rev. Mr. Allington of Swinop.

Losses from Mayday, 1793, to Mayday, 1794, 165 sheep out of 1466.

From Mayday, 1794, to Mayday, 1795, lost 166 out of 1600.

From June, 1795, to June, 1796, lost 168 out of 1256.  
From June, 1796, to June 1797, lost 131 out of 1364, the number in June, 1796: the total numbers include lambs, and counting stock at the commencement of the years thus dated: of the lost sheep, by killing many as soon as taken ill, they have turned to one-third or one-fourth of their value.

Flock, July 4th, 1797	-	584 ewes.
		645 lambs.
		233 ewe hogs.

Clipped 817	-	1462
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The wether hogs sold at Boston 4th of May in their wool.

Sale.—240 wether hogs.	£.	s.	d.
150 at 40s.	300	0	0
90, 70 at 25s. £ 87. 10s.; 20 £ 20.	107	10	0
90 drapes at 30s.	135	0	0
Wool,—the hogs <i>threes</i> . Ewes <i>fours</i> .	220	0	0
Locks, 26 stone 6s.	7	16	0
131 lost, of which 87 were hogs			
70 ewes sold, 60 for 36s.	108	0	0
10, 36s.	18	0	0
	126	0	0
Carried forward	896	6	0



			£.	s.	d.
	Brought over	-	896	6	0
16 at 28s.	-	-	22	8	0
Stock in July, 1797, losses deducted,	1462				
Stock in June, 1796	-	1364			
		<u>98</u>			
Increase	-	-			
Valued at 21s.	-	-	104	18	0
131 lost, of which 87 were hogs, made 5s.			32	15	0
			<u>1056</u>	<u>7</u>	<u>0</u>
Total	-	-			
The 150 sold at 40s. were joisted					
at Boston two weeks, at 6d. a	£.	s.	d.		
head	-	-	7	10	0
Deduct 4s. keeping on 98 lambs					
from June to October, when					
valued at 21s.	-	19	12	0	
		<u>27</u>	<u>2</u>	<u>0</u>	
Remains	-	-	1029	5	0

Or 35s. 3d. on the breeding ewes.

Go over of corn, seeds, turnips, and grass 1300 acres, of which corn 350; but there are thirty-seven farm horses, and forty others; and 16 draught oxen, 14 cows, 15 one and two years, 10 calves; the whole 1400 acres, including 50 gorse, and 50 meadow, of which sheep have nothing; would have let five years ago, when Mr. Allington took it, at £420. This flock has no hay; they are winter-fed on turnips; the hogs put on the beginning of October, and kept on them till sold in the spring, the ewes two months or ten weeks, according to quantity to spare. He sows about two-sevenths of his arable land, or near 300 acres; and three-sevenths of seeds, deducting generally one field of 30 or 40 acres. Thirty or forty

yearling, and two year old beasts run on them a good deal in summer, and afterwards some horses.

The wool of the Wolds, in a line from Barton to Gersby, is of a very fine quality. Mr. Holdgate of Thoresway, informed me, that he this year sold at 22s. the tod, of 28 lb. while I have seen much sold at 20s. the tod, of 29 lb. He thinks the true Lincoln most saleable, and most profitable therefore to breed.

Mr. Johnson of Kirmond had the goodness to shew me his shearling, two, three, and four-shear tups, which he assured me are pure Lincoln, without the least *touch* of Leicester, and I am glad to observe that they are very fine; large in the carcass, and heavy woolled. He clips from 15 to 21 lb. from his tups. Sells his lean shearling wethers 38s. to 44s. Clips above 1000. His father thirty years ago gave ten guineas for a ram. His tups are very high fed indeed, they had plenty of cabbages in a full bite of good grass, but no corn or cake.

Mr. Ellison of Sudbrook has practiced giving cake to sheep for eight years. He fats shearing wethers both on grass and turnips; begins between Martinmas and Christmas, for eight or nine weeks; in that time they will be as fat as the weight will pay for. Hains the grass from beginning of September, so as to support the sheep well, and not depend entirely on cakes: by this means can keep four an acre, keeping them two weeks at first without cake; to tempt them mixes bran or oats, or puts some sheep among them that have been used to this feeding; generally gives a ton to a score of sheep, at from £7. to £9. a ton. Cake at £8. a ton is as cheap as turnips at £4. an acre. If cakes were £11. or £12. a ton, he would still use them in this application. By the nearest calculation he estimates, that they will pay 3s. a head for their grass, after having paid for the cake; or at four per acre, 12s. an acre for the grass, cake being at £8. a ton;

always supposing that other food would rise with cake; and that, if that were £12. a ton, turnips would rise proportionably. Without cake they would take sixteen weeks to fatten, and then not be so fat as the cake-fed in eight or nine. This calculation of 3s. is at the lowest, because in many cases it has run much higher; in one particular instance 20s. a head. Five years ago he bought in shearlings at 32s.; in April summer-grazed them, taking the wool, and then put them on hained grass, and kept them on it till the end of November; then began cake, and held it till March, eating 10s. a head in cake; then sold half at £3. 8s. and the other half at £3. 12s. Clipped 7s. or 8s. a head. They were the pure Lincoln sort.

This time two years, he put 61 of his own bred hogs (new Leicester cross, one-third that blood) to cote about old Michaelmas, kept them till Christmas, then to grass which had been hained for them, giving cake as soon as to grass; kept them till the middle of February, and sold 60 at £3. 15s. each, being only shearlings. They weighed upon an average 26 lb. a quarter; the fleece was worth 8s.; they tallowed well. Breaks the cake at first to the size of beans, afterwards of walnuts; but takes care the troughs are covered, as rain makes the cake pasty, and it is then wasted. The effect of feeding thus, to the land is very great indeed; he has advanced grass from 12s. an acre to be worth 27s. by six years' feeding in the manner and time abovementioned, 4 to an acre. The troughs are kept moving; best to do this every morning.

Mr. Ellison has been seven years in the Leicester cross; which he much approves of; he thinks he can run one-third more in number upon the same land. Upon this I particularly questioned the bailiff, and he persisted in the fact. He can get them fat upon a certainty half a year sooner. The wool is better by 2s. 6d. a tod. He sold this

year (half hog) at 22s. 6d.; and the neighbours sold Lincoln one-third hog at 18s. 6d. and one-half hog at 19s. 6d. In hardiness and health, equal; but perhaps on wet land the lighter fleece and thinner pelt may be rather against them.

Mr. Ellison's flock, breeding ewes . . . 300

Tups . . . . . 3

Lambs . . . . . 300

Clipped last year 550.

Next year . . . 600.

Sells his fat wethers before the second clipping; last year, sold drapes at 28s. lean: 550 gave about 150 tod.

The wether lambs would sell in September at £ 1. 1s. each, on an average.

Meeting Mr. Thorpe of Owersby, at Mr. Moody's at Riseholm, and discoursing on the two breeds, he remarked that the Boston graziers were not fair judges, for they could not get good Leicesters, as the breeders are able to fat them themselves, which they were in many cases unable to do the Lincolns; those graziers compare such Leicesters as they can get (bad ones), with the best Lincolns, which is not a fair trial; and then appealed to his and Mr. Lloyd's offer for a fair experiment.\*

Mr. Moody of Riseholm, has been some years in the new Leicester. I had been informed, that he had repeatedly given very high prices for tups in Leicestershire, in order to breed wethers; but I found this erroneous: his

\* Lincoln ram shew, 1797; (Friday after New Michaelmas Day). Mr. Thorpe of Owersby, and Mr. Lloyd of Belesby, offer to any breeder of old Lincoln sheep, to stock with new Leicester hogs, the half of a field any where in Lincolnshire; if any Lincoln breeder will stock with Lincoln hogs the other half; to be weighed in alive, and to remain not less than a year; then to be killed, and that breed, which pays the most for the food shall be admitted to be best. No other food than the grass of the pasture to be given in the winter to either lot. Messrs. Lloyd and Thorpe not to put in less live weight than the Lincolns amount to.—Let it be on the worst or on the best land.

Witness, Arthur Young.

conduct has been much more measured.—His object was not wethers, but ewes; and he has not started as a tup-man, till by gaining a good race of ewes, he could use high priced rams to a direct advantage. Now he speaks a different language, and means to tread that field in which so many hard battles have been fought. He was for some years in the Lincoln breed, when he sold fat drapes at 21s. mutton being at 3d. and three-shear fat wethers at 26s. mutton at 3½d. Shearling Leicesters he sold in March, 1796, in the wool, at 53s. at London; and in 1795, at Wakefield, the last week in April, clipped, at 56s. the wool 7 lb. at 20s. a tod; not a few; the whole lot being nine or eleven score; and drapes fat at 45s. at Michaelmas.

The average of all his fleeces, ewes, hogs, and wethers, *fours*.

He is clear that the Leicesters run one-fourth thicker on the land than Lincolns; that is, 4 ewes and lambs per acre on seeds, to 3 ditto Lincolns.

One breed he thinks as hardy as the other; but is of opinion, that from the age of six to twelve months, they are rather tenderer than the Lincolns. Mr. Hall of Yorkshire, who was present, remarked ten months as the most tender age; that is to say, in the pinch of the winter. *Respe* the same with both.

Which will bear travelling best to London, Mr. Moody? Why a Lincoln not fat (and I have never seen them so) may travel better than a fat Leicester; but let them be equally fat, and Leicester will inevitably beat them.

Mr. Moody clips a sheep an acre on all the land that sheep ever go on,—upon a corn farm.

Mr. Daniel Hebb of Claypool, has been near thirty years in the new Leicester breed; but has had many Lincolns, so as to know well what that breed is; the former get as fat at one-shear as the latter at two, with less

trouble. Sells his shearlings at 40s. out of the wool, which is 8 to 10 lb. a fleece; at the Michaelmas following has sold at 50s. and can run them one-tenth thicker on the ground. He clips above 1000. His farm being cold clay ground, he has no turnips, but buys in Nottinghamshire; never gives any hay to his sheep except in snow, or to hogs, and to these, not so much as formerly. On his worst land he winters one sheep an acre; upon his best two, on an average: some more, some less. In summer two an acre, and on some land three or four, besides cattle. He remarks that the new Leicester cut a bad figure as store sheep, but get by fattening to a large size, and very fat; and on wet land in winter will do as well as the Lincolns, keeping their mutton better. They lamb much easier. He has a neighbour who once lost twelve in sixty of the old Lincolns, when a great head and large bone were reckoned beauties. Mr. Hebb lets about sixty in a year, from five to forty guineas. Selling shearlings at 40s. he thus divides the price:

- At 6 months, 18s. to 20s.
- 12 ditto 28s.
- 18 ditto 28s. to 30s.
- 24 ditto 40s.

Mr. Hebb shewed me some of his tups.

Mr. Dalby of Marston, was in the new Leicester breed before Mr. Bakewell's sale in 1777, at which he bought a tup; and at that time Mr. Bakewell told him, that Lincolnshire would, some time or other, be the best of markets for the Leicester tup-men, which Mr. Dalby did not at all credit;—but the fact is proving itself every day.

Mr. Dalby gives the preference entirely to the new Leicester breed, and for the reason so often repeated, their coming sooner to market; and he thinks they may on the same land be run one-sixth thicker. He teds fours.

Mr. Walker of Woolthorpe, thinks that the deficiency

cies which want remedying in Lincoln sheep are these : It seemed to be an animal that had been formed with few other ideas than the production of wool ; and till this object was attained, they appeared for a long time to regard nothing but the weight of wool per fleece. It had a long, crooked, lean back, flat ribs, deep belly, dock large, forward loose shoulders, heavy neck, great head, and large bones, with a sinking dewlap ; a pelt that appeared too large for the animal, wide in his hind legs, inclined to be poor upon moderate keep, but when forced in the marshes, laid on a quantity of loose coarse-grained mutton ; the fleece generally of hogs and wethers well maintained, 14 lb. ; and ewes the same, 8 to 10 lb. If there was a part in them superior to the rest, it was in the loin, and points of the rump, which were much better than the chine and ribs.

.. Progress of the new Leicester breed ;

.. Mr. Bakewell for many years selected the best formed sheep wherever he could find them :—he had some from near Sleaford early in the pursuit ; others from near Melton Mowbray ; some from near Grantham : that there is some Lincoln blood in the origin of the present Dishley breed, cannot be doubted ; hence Mr. Walker conceives the singular propriety of Lincoln going back to that selection of her own stock (partially), which was formed by the best judge that ever existed.

It is therefore evident that such a breed must be greatly improved by the introduction of tups, which exhibit a back straight and short, for a long back is rarely good ; but the whole length not short, as it is made up in the length of the quarters, with shoulders that lie back at top, joining the ribs imperceptibly ; and the hind quarters so corresponding, with a springing rib, as to form an oval ; with the intestines so small, and contained under the ribs, as to prevent depth of belly ; with the top of the neck and the

throat so light as to appear to be merely a passage to the stomach ; but with a bosom round and fat ; brisket wide and fat, but not deep ; for no deep breasted sheep has a good chine ; with a small long face, and a prominent eye ; the ear so thin as not to indicate a thick pelt ; no dewlap ; nor superfluity of pelt ; the gambrels of the hind legs rather inclining inwards, and the twist fat, and well filled ; outside of the thigh light, being a symptom of fine flesh ; dock small ; the rump points narrow, to form their share in the oval abovementioned, and fat ; whether clefted deep or not, immaterial, for the very best sheep have not been clefted at all in the chine, though they were upon the rump as far as the hip ; small bones ; an inclination to be fat. It is necessary only to describe such points ; any animal that has them will be fat, whether sheep, ox, horse, hog, dog, or cat.

In respect to size and wool. Of the first it must be observed, that though the frame of these sheep seem much smaller to the eye, they are not so in the scales, for it is not very uncommon for two-shear wethers to come to 40 lb. a quarter at Michaelmas ; as to wool, it ought to be reckoned per acre, and not per fleece, and then the inferiority may not be so great as some imagine : per fleece they may be reckoned one-third inferior, of a quality rather preferable.

As to health and number brought up :—suppose in 100 ewes put to tup, 10 barren, 5 may miscarry in lambing, and in all 15 per cent ; but conceives that the Lincoln will not have so many barren ; this he attributes to not keeping the ewes and tups down enough in fat, for then this circumstance happens.

Another very material circumstance, is the value of the ewes when culled for the butcher ; Mr. Walker has many customers that will sell all their drapes to the butcher at



£ 2. 12s. 6d. each, and he presumes that this is not to be equalled in the Lincoln breed,

He remarks, that Mr. Wilson of Hungerton, has had tups from him; for four years only, on land of 7s. an acre, and if any person of fortune should be inclined to make an experiment on fattening wethers of this breed against any other, he has no doubt but the sheep bred by this gentleman, and others he is ready to name, would prove satisfactory specimens for trials of that sort. In such cases let it be observed, that wethers for the purpose are ready in plenty.

Mr. Walker thinks that wethers from 28 to 30 lb. a quarter, is as large in a general way as it is desirable they should be at two-shear, killed at Michaelmas; but the breed comes up to 50 lb. a quarter; and some shearlings have been seen at fifteen months old, that weighed 30 lb. a quarter. But he regards size in sheep, as an object very inferior to blood and delicacy; as he is sure, from long practice, that if he keeps steady to these, he shall preserve the high degree of merit in disposition to fatten, which is a point of much more importance than a great frame, or a heavy fleece; and in point of food, he is of opinion, that all live stock will eat a weight of food nearly in proportion to their own weight, every other circumstance being equal, as breed, age, health, &c. consequently a sheep of 25 lb. a quarter is as profitable as one of 50 lb. a quarter. He has this year kept four tups an acre of 35 lb. a quarter, on ten acres of clover, from the first of May, till the 10th of October, besides mowing fifteen loads of hay from it: this Mr. Walker conceives to be heavy stocking; however the field is the best he has.

This breed bears travelling better than any that are equally fat.

Good sheep well managed, will

be at 6 months	-	25	
— 12 ditto	-	35	wool 8 lb.
— 18 ditto	-	50	
— 24 ditto	-	60	wool 8 lb.
— 30 ditto	-	72	

Mr. Walker will bet that he finds a score of wethers 2½ years old, in one man's hands, that weigh 36 lb. a quarter; and the same number that will weigh 30 lb. a quarter, at two years old.

In all the country, west of the North road, this breed has greatly increased, and are increasing still.

The common breed here is a bastard Lincoln, very rough, bad woolled, small, and perhaps as bad as can be seen any where; and it is a curious fact, that in seven years Mr. Walker has let only one tup in the whole lordship.

Amongst Mr. Walker's sheep, those I most admired for their apparent blood, were got by his own H, being the son of G; and G by a son of the Dishley old G. —The ewes bred by himself and father for thirty-five years, *in and in*, all of the Dishley blood. One ram lamb, which I noted particularly for fineness, pelt, bone, flesh, &c. he then christened A. Y. I wish my namesake success. Examining this lamb, Mr. Walker remarked, that having caught his eye often for his extreme delicacy, he had some suspicion (afterwards negatived by fact), that he would prove imperfect, where perfection is most essential; as he had before found this to be the case with similar forms. I caught at this observation, and mentioned the reproach under which some of the best of this breed of sheep laboured, of being deficient in vigour; and that if an extreme degree of fineness and de-

licacy proved a sign of this circumstance, it should seem, that constantly attending to such a *ewish* form as a perfection, might gradually entail the greatest of evils. His answer was, that in such instances as this had occurred in (he shewed me two), the delicacy was not the cause of the imperfection; but the imperfection the cause of the delicacy: which may be true; but the objection is not thence removed: and it remains a question, whether, in a given number of rams, bred fine, and an equal number coarser, there will not be a greater number imperfect in the former than in the latter: and the objection extends yet further; it has been contended by some, that the new Leicester breed, though not *imperfect*, are yet *deficient* in vigour, and many ewes are found barren. Does not this fact unite with the preceding? and shew, that these circumstances are really combined; and that you may *fine* a breed till you produce a beautiful animal, deficient, though not quite imperfect, in generative power.

That Mr. Walker is very deep in Dishley blood will appear, not only from the above circumstances, but also from these: In 1780, such was the effect of the American war, that there was but one ram let at Dishley so high as ten guineas, and two persons joined for him; yet that year Mr. Walker gave five guineas for one, which was of considerable note. They had, however, been high; for about 1770, a ram made 100 guineas at Dishley. In 1774, his father gave there forty guineas for the covering of twenty ewes. In 1782, Mr. Walker gave twenty-five guineas for a shearling. In 1786, he hired there three shearlings for 150 guineas; and those three Mr. Bakewell let the year following for 1000 guineas. About the year 1787, Mr. Walker joined with Mr. Buckley in giving 400 guineas for a ram. From that time the prices rose rapidly.

The Duke of Ancaster at Grimsthorpe, clips 1500

wethers and hogs. Buys in the spring, at Grantham, lamb hogs; keeps on the poorest land till autumn; but as the two-shears are sent off, these are brought in to take their places. In November, on the best land; no turnips; but in blasts, some hay at stacks; no eddish, except to follow beasts, it being the winter growth that supports them: two to an acre in winter. Begins to send to market in May, and thence till November. Buys in from 24s. to 32s. for the lamb hogs; since prices have been high; fifteen years ago, from 16s. to 22s. Sold last year at 45s. or 46s. on an average; this year something less; and the year before the same as this. Thus 18s. a head profit, and two fleeces of wool 18 lb. or 12s.; in all 30s. As to losses, they amount to about 5 in 100.

The breed Mr. Parker fixes on to choose, is the cross between Lincoln and Leicester, which he thinks preferable to either wholly; too much attention is paid to wool on poor land, as he thinks they should on such have more Leicester blood than they commonly have; he would wish to have not more than 9 or 10 lb. wool; if they have more than that, he cannot make them fat without difficulty:—many graziers in this neighbourhood, who have gone to Boston to buy heavy woolled sheep, have found it so to their loss. Mr. Parker has the two sorts running at the same time, on the same land, and he is clear in the superiority of the Leicester cross. He thinks the Leicester will travel best to Smithfield. Scarcely ever has a sheep dropt. Prefers them also in respect of healthiness. On breeding farms there is a great advantage in the fall of the lambs, the Lincoln coming large, the Leicester small. The difference of loss in lambing will be very considerable. He has bred many himself; he has more Leicester than Lincoln, and if he had still more, it would he thinks be better, but does not like giving up wool too much; and in stocking land with the two breeds distinct, he

thinks 500 Lincolns would demand a third more land than 500 Leicesters. However the Lincolns, he admits, will give more wool per acre than the *new* Leicesters. And of the sorts of Leicester, he thinks that the *finer* they are bred, the better they are for fatting: and he would not avoid any degree of fineness, except for the object of wool, which must not be abandoned.

There are many breeding flocks in the vicinity of Grimsthorpe, and generally a cross of the new Leicester. On the level beyond Bourn, they are more in the Lincoln; the greatest part of them having cole on their farms, by which they can make that breed fat.

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To draw this great variety of miscellaneous information into some degree of order, upon the heads which are most interesting, is not an easy task; and I shall not attempt it, without cautioning the reader against passing over the minutes themselves, and looking only at the following extracts, which will contain merely the most prominent features of certain objects. When a question of comparison is so warmly agitated as that of the new Leicester, with the Lincoln breed of sheep in this county, the private interest, prejudice, and habits of mankind, are strongly in the way of pure and genuine authority. The careful reader, who examines with a view only to truth, cannot be too much on his guard.

*Price of Sheep.*

Place.	Age bought in	Price in 1796, or 1797, lean.	General price.	Price fat, t, s, and g-shear.	Breed.
		s. d.	s. d.	s. d.	
Surton	Shearl.	50	39	60	Linc.
Spalding	ditto	—	35	45	ditto
Weston	—	—	—	60	ditto
Boston	—	—	—	60	ditto
Holland Fen	—	—	—	52 6	ditto
Swineshead	ditto	42 6	32	55	ditto
Ewerby	ditto	30	—	—	Leic.
Berthorpe	ditto	27	—	60	ditto
Belton	ditto	20	—	—	ditto
Leadenham	—	—	—	47 6	ditto
Blankney	ditto	36	34	60	ditto
Hackthorne	ditto	38	—	—	Linc.
Norton	ditto	40	—	—	Leic.
Knaith	—	—	—	49	ditto
Alkborough	—	—	—	45	ditto
Barton	—	—	—	38	ditto
Barrow	—	—	—	40	ditto
Brocklesby	—	—	—	46	ditto
Cadney	—	—	—	42	Linc.
Belesby	—	—	—	45	Leic.
Tathwell	—	—	—	60	Linc.
Dalby	—	—	—	51 8	ditto
Driby	—	—	—	46	mixed
Skirbeck	—	—	—	55	Linc.
Stainsby	—	—	—	60	ditto
Keal	—	—	—	65	Leic.
Frampton	—	—	—	72	Linc.
Elkington	—	—	—	44	ditto
Swinop	—	—	—	40	ditto
Rischohm	—	—	—	55	Leic.
Woolsthorpe	—	—	—	72	ditto
Grimsthorpe	—	—	—	45	mixed
Average	—	—	—	53 6	

This average goes to the county feeding in general, and concerns not the question of the breeds. It shews the size and-fatness of the wethers, and the fertility of the soil that feeds them.

*Wool.*

Place.	Lincoln fleece.	Breed.	Leicester fleece.	Mixed.
	lb.		lb.	
Spalding -	— {	$\frac{1}{2}$ Linc. $\frac{1}{2}$ Leic.	—	10
Boston -	14	Linc.		
Holland Fen	12	ditto		
Wolds -	9 $\frac{1}{2}$	ditto		
Swineshead -	1st 9 2d 11 3d 9	ditto		
Ewerby -	—	Leic.	8 $\frac{1}{2}$	
Hackington -	9 $\frac{1}{2}$	Linc.		
	—	Leic.	8	
Belton -	1st — 2d — 3d —	ditto	8 8 7	
Norton -	—	ditto	8	
Barton -	—	ditto	6 $\frac{1}{2}$	
Barrow -	—	ditto	7	
Lumber -	9 $\frac{1}{2}$	Linc.		
	—	Leic.	6 $\frac{1}{2}$	
Belesby -	7 $\frac{1}{2}$	Linc.		
	—	Leic.	7 $\frac{1}{2}$	
Alesby -	—	ditto	7	
	8	Linc.		
Humberston -	9	ditto		
Tathwell -	10	ditto		
Cookswold -	—	Leic.	7	
	10	Linc.		
Haffham -	14	ditto		
Gayton -	8	ditto		
Tathwell -	8	ditto		
Dalby -	—	mixed	—	11
Partney -	11 $\frac{1}{2}$	Linc.	—	
Driby -	—	mixed	—	8
Carried forward	169 $\frac{1}{2}$	—	88 $\frac{1}{2}$	29

Place.	Lincoln fleece.	Breed.	Leicester fleece.	Mixed.
Brought over	lb. 169½		lb. 88½	29
Spilsby -	—	Leic.	9½	
Skirbeck -	8	Linc.		
Stainsby -	12	ditto		
Keal -	—	Leic.	9 { 1160 tods of wool from 2400 acres of all sorts, or 14 lb. an acre.	
Ranby -	—	ditto		
Frampton -	12	Linc.		
Mr. Cunliff -	Average of the whole county 9 lb.			
Mr. Blythe -	Average of the whole county 8 lb.			
	And a fleece and half or 12 lb. per acre the produce of the whole county.			
Rischolm -	—	Leic.	7½ clip a sheep an acre on a corn farm.	
Claypool -	—	ditto	9	
Woolsthorpe -	—	ditto	8	
Grimsthorpe -	—	mixed	—	9
	201½		142½	38
Average -	10		7½	9½

The probability therefore is, that the average of the county may be as stated above, 9 lb.

Upon the very remarkable facts, that the whole county carries a sheep and half per acre, at 9 lb. per fleece, I may observe, that if this is true, or 'near the truth, it is probably stocked far beyond any other in the kingdom: Instead of 1,848,000 acres, let us call it 1,600,000, allowing 248,000 acres for lands that do not probably come into the account at all; at a sheep and half, there are then 2,400,000 sheep in the county; producing 21,610,000 lb. of wool, which at only 9d. per pound, or £. 810,000, amounts to 10s. an acre over the whole. Such an account, or any thing near it, is not to be produced in any other



district probably in the world. This fact shews the immense consequence to Lincolnshire of a fair price of wool; the manufacturers, in their evidence given before Parliament, on the Wool bill, stated what they called the rivalry of French fabrics of long wool, by means of smuggling it from England; supposing the fact (which was directly the reverse), it has now certainly ceased, for the French manufactures have ceased; add to this, that our woollen fabrics, as appears by their registers, and by the custom-house exports, are far more prosperous, yet the price of Lincoln wool was 1s. and it is now only 9d.; contrary to every thing that ought in such cases to take place.

At a fair price, the wool of this county would sell for £.1080,000. a year: the difference is a very material loss indeed!

*Circumstances of comparison.*

- |                    |  |
|--------------------|--|
| <i>Boston</i>      | Lincoln better than Leicester on general experience, and particular experiment.                      |
| <i>Brothertoft</i> | In experiment very little difference.  |
| <i>Ewerby</i>      | Leicester tenderer than Lincoln.   |
|                    | Lincoln pay best for keeping to three-shear.   |
| <i>Hackington</i>  | Last year of Lincolns pay best.  |
| <i>Ewerby</i>      | Old sheep stand the winter better, and pay better than young.  |
| <i>Owersby</i>     | Shearling Leicesters have, at Wakefield, sold as high as two-shear Lincolns.                         |
|                    | Difference of wool has been as 8 to 16.  |
|                    | Leicesters run thicker, 1 in 5.  |
|                    | Leicesters tenderer in winter.   |
| <i>Normanby</i>    | Lincoln fleece 2 lb. heavier than Leicester.   |
|                    | Leicester off-shearlings; Lincolns 2 or three-shear, but the latter pay well if kept to three-shear. |
|                    | Leicesters finer grained mutton.   |

Leicesters rather thicker on the land, but  
Lincolns considerably larger.

As much wool per acre from Leicesters as  
Lincolns.

*Walcot* Leicester fleeces, though not so heavy as Lin-  
coln, sold in one instance for as much  
money.

*Barton* Leicester not tenderer in winter than Lincoln.  
Old breed of Lincoln used to go lean at two  
years old.

Now, Leicesters fat at the same age.

No difference in number on the same land.

Wool the same.

*Canby* Leicesters come to sale sooner, but will not  
bear cold wet land in winter so well, nor  
heat or cold after shearing as the Lin-  
coln.

*Barrow* Five Leicesters where four Lincolns; and  
Leicesters have resisted hardships on the  
worst land better.

*Brocklesby* Lincoln more profitable than Leicester.

*Lumber* Where a man can keep, by means of marsh,  
to three-shear, Lincoln most profitable, but  
not otherwise. Not more Leicesters kept  
on the same land. Leicester wool 1s. a  
tod more than Lincoln. Leicester more  
liable to the fly.

*Cadney* Leicester will feed a little faster, and run a  
little thicker.

*Belesby* Leicester one in six more on the same land,  
but both go at the same age. Leicesters  
hardier, and have less offal. Tallow equal;  
wool higher priced. Gives corn to Lei-  
cesters, but did not to Lincolns.

*Allesby* Leicesters feed quicker, and have less offal;

- wethers and hogs less wool, but ewes equal, and on the whole more per acre ; hardier, and bear driving better. Go off at the same age, but Leicesters fatter. Five kept instead of four. Lamb easier ; necessary to give corn.
- Humberston* More pride than profit in the new sort.  
Leicesters 2 lb. less wool than Lincolns, and not better ; but run one in ten thicker.
- Louth* Leicesters feed quicker, and have lighter offals.  
No difference in hardiness. Lincoln best.
- Tathwell* Lincolns and Leicesters being put together into the marsh, and sent thence at same time to Smithfield ; the former yielded 4. a head more, and 5s. a head more wool.
- Cookswold* Marsh graziers all prefer Lincoln. No difference in number kept.
- Tathwell* Lincoln wool 4 lb. heavier than Leicester.  
At two-shear, Lincoln heavier by 2 lb. a quarter ; at three-shear, 5 lb. In tallow, 6 lb. at three-shear, in favour of Lincoln. In number per acre no difference. In hardiness, Lincoln best. Leicesters less wool and less mutton per acre.
- Driby* No difference in number kept.
- Spilsby* Leicesters as fat at Lady-day, coming two-shear, as Lincolns at Lammas. Same number per acre. No difference in hardiness ; Leicesters have corn.
- Horncastle* Three-shear better than two, as sure to find more tallow.
- Asgarby* Leicesters bred too fine ; fine headed ones do not yield wool enough.
- Frampton* As many of one as the other per acre. Lincolns travel best, and pay best.

- Ranby*      Leicesters thicker on land, as five to four.
- Alderkirk*    In an experiment of the two breeds, on the same land, of the same weight and age, the Lincolns considerably superior.
- Thoresway*   True Lincolns most saleable, and most profitable to breed.
- Sudbrook*    One-third more Leicesters on the same land.
- Riseholm*    Boston graziers not judges, for they can get good Lincolns, but not Leicesters, as the breeders of these can fat them themselves. Leicesters run one-fourth thicker on the land. From 6 to 12 months old, rather tenderer than Lincolns; Leicesters travel best.
- Claypool.*    Leicesters as fat at one year as Lincolns at two, and with less trouble, and one-tenth thicker. Do as well as Lincolns in winter on wet land.
- Marston*    Leicesters best, and run one-sixth thicker.
- Woolsthorpe* Leicesters by far the best; but more apt to be barren than Lincolns. Drape ewes far more valuable.
- Grimsthorpe* Leicesters travel best, and are the best; and much less loss in lambing; run one-third thicker.
- 

I am very unwilling to add any thing here in my own person; the table is not long, and a little attention to it will enable any reader to draw his conclusions without material error. A clear distinction is to be drawn between the rich south-eastern district and inferior soils; for upon the former the information is strong in favour of Lincoln.

In general I should observe, that the new Leicesters are spreading very rapidly over the county, probably faster

than they have done in any other, one or two only excepted, which may be attributed to the general goodness of the soil ; for this breed makes a much more respectable figure than it has done in various trials made in countries inferior to it in soil ; and the breed driving out the Lincoln so much as it has done in the poorer parts of this county, is a fact that unites with this circumstance. The true Lincoln is a larger sheep, and with a longer wool, and therefore demands better pasturage ; where it finds such, *there* the old breed remains ; subject, perhaps, to little more change than *fashion* may cause. Upon inferior land the Leicester establishes itself ; and upon land still inferior in other counties, experiments prove unsuccessful for the same reason ; that of the necessity of having a smaller size and shorter wool.

In these notes are many points upon which it would be easy to expatiate ; I wish there had been more experiments, and fewer assertions. I leave the Lincoln gentlemen to speak for themselves.

#### *Feeding.*

*Knaith* 1 lb. of oil cake a day per wether, with turnips, more profitable than the latter alone.

*Tathwell* 450 acres, including corn, &c. &c. support 400 Lincoln ewes, and 360 lambs.

Nothing makes wool grow so fast as feeding upon oil cake.

*Dalby* 2400 clipped on 1400 acres, grass and arable.

*Asgarby* The food being weighed to two sheep of 34 lb. a quarter, and to two of 24 lb. a quarter, the difference eaten was not near to the proportion of weight, the largest ate least proportionably.

*Sudbrook* Aftergrass with oil cake, 5 acres and a ton of cake 20 wethers. Cake at £8. as cheap as

turnips at £4. Grass thus advanced from 12s. an acre to 27s.

*Swinap* 1462 sheep go over 1300 acres, including every thing.

Such particulars are interesting wherever found ; and by being combined and contrasted with similar ones in other counties, will furnish materials equally valuable to the cultivator and the political arithmetician.

*Age at which sold.*

			worth at 6 month	at 12 month	at 18 month	at 24 month	at 30 month	at 36 month
			s.	s.	s.	s.	s.	s.
Ewerby	-	-	17	30	35	45	45	55
Berthorpe	.	-	17	27	32	40	43	
Belton	-	-	12	20	25	35	35	35
Belesby	-	-	14	22	28	35	45	50
Dalby	-		20	30	33	46		
Spilsby	-	-	28	35	40	48	56	60
Ranby	-	-	25	30	38	48	50	60
Claypool	-		19	28	29	40		
Average -			17	25	29	37	39	52
Add wool -			0	7	0	7	0	7
Together -			17	32	29	44	39	59
Increase by each 6 months			17	4	4	14	2	19
Ditto by each year -			31		18		21	

It is sufficiently evident from this table, that to keep breeding ewes, where the lambs will sell at 17s. is more profitable than any other sheep system, supposing the land to be proper for the stock ; 7s. for the ewe's fleece makes this 24s. per head for half the flock, the other half pro-

ducing ewe lambs, do not pay equally ; but let the average be reduced to 20s. still it is far better than any other system here noted, as, admitting the 19s. for the last column, yet it is not to be attained without passing through the periods which answer so much worse than any others ; and though both ewe and lamb are to be well kept for six months, yet the ewe is kept at a moderate expence the other six ; whereas fattening sheep must be favoured in food.

#### *Folding.*

This is dispatched in few words.—I never saw a fold in the county, except in a few open fields near Stamford, nor heard of its having been practiced, except in a trial made by Mr. Wright of Riseholm, near Lincoln, who had a very nice flock of the country sheep, that had been collected with care ; but having seen and heard much of the effect in some other county, was convinced of the propriety ; changed his stock, and got a flock of Hertfords, which he folded ; the result, however, was so very unfavourable on the general account, though partially beneficial, that after a few years he gave it up, convinced by positive experience of the great loss attending it. A great experiment, though quickly described.

Mr. Hebb of Claypool assured me, that before 1771, when that and other lordships were open, the old Lincoln sheep there were regularly folded, and bore it well ; but since the inclosure, nothing of it has been heard of.

In the open fields near Stamford, there are yet some folds remaining ; but the sheep are miserably bad ; in wool 8 or 9 to a tod.

#### *Distempers.*

*Respe*—In hoggets ; when dead, the flesh all rotten and putrid ; it arises from being forced on cole.

In the marsh land at Weston, this year 1797, vast numbers of sheep had the foot-halt :—pare, and dress with

butter of antimony ;—it arises from plenty of grass by the luxuriance of the year.

Mr. Cartwright has found, by many observations, by means of his engine for weighing live animals, that the least ailment, a little of the foot-halt, or a fly-struck sheep, loses weight greatly and immediately, and also that upon recovering they thrive much faster than any other sheep ; this is a point that deserves much attention in all comparative experiments, and also to have a constant eye to such sheep, to prevent such evils.

Upon Wildmore Fen the thistles are in such enormous quantity, that a common complaint is sore noses, with such a prevention of feeding, that numbers die : they run matter, and there is an idea that it becomes an infection ; but this is probably erroneous.

In Holland Fen the *respe* is a fatal malady among sheep fed on cole ; the loss has often amounted to 15 per cent, and particularly in very luxuriant crops, on fresh land ; the best sheep die first. To prevent it, they drive them in the night, and some for a few hours in the middle of the day, to another field ; Mr. Cartwright, after losing many, tried this, and lost no more. It is good, when this is not done, to *raise* them in the night ; the shepherd goes into the field to disturb, and make them stale ; the cole supposed to have a narcotic quality. All sorts and ages subject to this distemper. No losses but in cole ; the grass lands quite healthy.

September 20th, 1796, observation by Mr. Gentle Brown of Lincoln, that putting a large lot of lambs upon cole, was told he should have great loss ; but by bleeding in the roof of the mouth before they went in, and once every three weeks afterwards, giving a large wine glass of strong salt and water, he escaped without losing a single lamb. The cole was upon his fen land, which he described to be of a black peaty quality.



The rickets have done great mischief at Leadenham; Mr. Betsal there, who had been at some expence in breeding new Leicesters, was forced to change his stock entirely, by which he hopes to escape this disorder; and some others in the neighbourhood have done the same. No rickets at Blankney; but they had it some years ago.

The *respe* has also made considerable ravages; Mr. Graburn has prevented it by giving, while on turnips, clover or sainfoin hay, which has prevented it; turnips alone are too watery, and dry food is useful. The gid kills one in forty; no cure; they have attempted to trepan, but no success.

About Louth, the loss in feeding rape by the *respe* is very great, and no attention, it is said, will entirely prevent it; some farmers thought they lost 10 per cent. on all turned in, others not so many.

The foot-halt troublesome about Saltfleet; tar and salt wrapped in a strong canvas, the best remedy. They are certain that it is infectious.

The Rev. Mr. Allington of Swinop, has suffered very much by losing sheep turnip fed by the red water; and upon being opened in the presence of a skilful surgeon, he was of opinion, that the distemper was simply a dropsy, as the kidneys had ceased to act. He has known no cure or prevention that is effective; has heard of salt, driving about, &c. but not found them effective.

The *respe* at Sudbrook, not particularly fatal, rather the contrary; last year in 300 lost only 5.

Mr. Hall from Yorkshire, has been informed, that antimony and brimstone in equal quantities, mixed up with treacle, is a preservative from the *respe*.

Mr. Dalby of Marston informed me, that the red sand of that vicinity has a quality in the seeds which he cannot account for, that of killing lambs at about ten days old; they die of the *skit*, or scouring; and it is particularly ex-

perienced in new inclosures; clay soil is free from it, and old meadow and pasture land; and the more the sands are improved, the more they have this effect; and it is remarkable, that the lambs which come for the first fortnight or three weeks escape, it usually beginning about Old Lady-day, or a week before; it should seem from this, as if it arose from the first spring of the herbage.

He also informed me, that they lose many lambs of *the yellows*, from August to the middle of September, on fresh clover; they are putrid, as in the *respe*, but quite yellow.

### SECT. 3.—Horses.

KEPT remarkably cheap in Deeping Fen, on rich commons in the summer, and in straw yard in winter. Many never have any oats: cannot amount to £ 5. a head; chiefly mares, and so nothing at all in fact.

Every farmer in Holland Fen keeps mares for breeding, and the numbers are very great; a very good four-year old cart horse sells at £ 30. and is a common price; £ 25. for a very good three-year old. Mr. Thacker of Langrike Ferry, buys in Yorkshire at three years old in autumn, winters on straw, works a little in spring, and sells at Horncastle fair in August; one of the greatest fairs in the kingdom; a good judge makes money in this way. Oxen are no where worked in common; Mr. Cartwright has used, and approves them.

Mr. Cartwright has found that the common groundsel, given plentifully to horses in the stable, will cure greasy heels. It is always of importance to know the uses to which weeds may be applied. The expence of keeping horses may be thus stated in Holland Fen:

	£.	s.	d.
20 weeks summer food, joisting price 4s.	4	0	0
32 weeks, 7s. a week, allowing a horse 18 lb.			
hay, and half a peck of oats	11	4	0
Shoeing,—go bare foot behind, except in frosty			
weather	0	10	0
Farrier	0	10	0
Decline of value			
Improve till eight years, and then are sold to stage			
waggon, decline after, and some sooner,			
begin to work at two for exercise ; increase			
at three, and at four ditto full work	1	0	0
	<hr/>		
	17	4	0
	<hr/>		

These are for Mr. Cartwright's horses, which are harder worked by woad than farmers.

About Folkingham,

2 quarters, 2 bushels of beans, 24s.	-	2	14	0
Hay twenty weeks, at 2s. 6d. cwt.	-	4	10	0
Chaff from barns				
Summer thirty-two weeks, 4s.	-	6	8	0
Farrier	-	0	5	0
Shoeing by contract	-	0	5	0
		<hr/>		
		14	2	0
		<hr/>		

No decline of value, as they all breed, and rather make a profit than a loss.

About Grantham many oxen have been worked, but all left off ; once they were seen all the way from Grantham to Lincoln, now scarcely any ; a pair of mares, and one man, will do as much work as four oxen, and two men.

The first signs I saw of working oxen were the yokes and bows at the farm of Mr. Thorpe at Kirton ; he uses

them for ox-harrowing, and also for carting. The same farmer keeps his team horses loose, in a well inclosed warm yard, littered, with the racks and mangers under an open shed: an excellent system for health. But on the Wolds, most farmers have some oxen for working.

About Normanby, Burton, &c. many bred, both for saddle and coach; sell at two, three, and four years old; get from 80 guineas at four years old a hunter, down to £7 or £8. A good coach horse, at four years old, £30 to £40. Howden in Yorkshire is the fair, and one of the greatest in the kingdom; also many to Horncastle. Yearlings and two year olds, all to Howden. Summergate, for a horse on the best marshes £3. from Mayday to Michaelmas. Expence of farm horses £10. per head; but few give corn, unless hard worked. All black mares for breeding, and sell the colts at two years old, at £12. to £20.

Mr. Graburn of Barton, shod his oxen with horse shoes reversed in putting on, that is the heels of the shoe before; and they walked on stones perfectly well; but left off the practice, because the shoes came off, like common ones.

They use oxen at Wintringham in carting; and the proportion will be seen by the stock on Mr. Cust's farm, which is 14 horses, 4 to 6 oxen, 6 colts, 4 cows.

They are also used moderately for carting all the way from Barton by Grimsby to Louth; many bred about Louth.

Horses are bred in the marshes about Saltfleet, cart mares being chiefly kept; ten mares are found to one horse. Did sell Michaelmas foals at £10. but now much lower; if not foals, at two, three, and four years old; at three or four years old, when high, at £30.; but now not much more than half.

Mr. Bourne of Dalby breeds none, but buys foals from four to six months old, at 6 to 16 guineas. He thinks the

expence of keeping a farm working horse £ 15. a year, no decline of value, as he never keeps longer than five or six years old : on the contrary, he thinks that all he keeps pays him, on an average, something ; \* perhaps nearly as much as other sorts of stock : observing, that those horses which do not work, and are two-thirds of the number, are kept at a more reasonable rate than the working ones ; so that if he did not keep those horses, he should keep but few more cattle.

Mr. Neve of North Sommercots, instead of giving his horses cooling opening physic, feeds them for three weeks or a month with oats, malted in sea water, and finds it highly conducive to their health.

Mr. Wright's horse from Dishley covers at Spilsby 20 black mares a year : sells at two and three years old ; 30 guineas each ; since, 25, &c. Has sold as high as 36, and even £ 40.

Mr. Smith of South Elkington, like all his neighbours, works oxen for leading manure, and corn, and hay. They never have corn nor hay, except a little when they are in work ; are at other times wintered on straw ; and thinks that he can keep two oxen for the expence of one horse ; but that the horse will not draw so much as the two oxen. He is of opinion, that there would be no such thing as ploughing with them, they move so slow.

#### SECT. 4.—*Hogs.*

THE hogs common in Holland Fen, about Boston, &c. are mongrel sorts of no merit ; but others have been

\* The finest and best horses in the kingdom, chiefly of what are called the blood kind, are bred upon the Wolds ; a greater attention is paid to that species of horse by the Wold graziers than even in Yorkshire or Durham, that formerly were so famous for their breed of hunting horses.

introduced which have made great improvement in this stock. Mr. Cartwright has a Berkshire boar, that is a capital one for size, weight, breadth, and length; many have been bred from him at 10s. 6d. a sow, a sure proof that he is well approved in the country. A sow came 60 miles to him, and two or three from Holbeach. At Brothertoft there are also some good ones of the black breed.

Mr. Hoyte of Osbornby has the breed of Mr. Buckley; white, small bone, short nose, full in the fore quarters, level, and feeding in disposition; also a very excellent race of the black Chinese:—these pigs have much merit. The common breed of the country is the lop eared, long haired, coarse, but improved by the black; which cross has been very profitable, for the size is not lost, but the feeding quality improved.

Mr. Fisher of Kirkby has a good breed of black pigs; Mr. Thorpe at Owersby has a very good contrivance for feeding his pigs, so that every pig may have a hole for his head, without incommoding or driving away his neighbour. He has raised brick arches over a brick or stone trough, just sufficient to admit the pig's head in. He fattens his hogs on the same food as his bullocks, boiled lintseed mixed with barley meal, and finds it answers well.

Mr. Lloyd at Belesby has a very good breed of pigs on comparison with any I have seen in a long course of country through North Lincoln, where they have in general a very ill made hog, which ought to be improved.

Mr. Linton of Freiston has a great opinion of the profit of hogs; he breeds many, and has sold a year's produce of three sows for £65. from which may be deducted about £7. for the corn they ate, having nothing but the barn door, grass, and a few refuse potatoes. He does not grow above 130 acres of corn.

Mr. Johnson of Kirmond, has an excellent breed of

large hogs, the black and sandy, thick, heavy, and light offals.

### SECT. 5.—*Rabbits.*

AT Blankney, Mr. Richard Piers holds a warren under Charles Chaplin, Esq. who gave the following particulars.

On 1000 acres it is fair to kill 2000 couple, which are sold by the hundred; six score couple are a hundred of rabbits, which have sold at £ 10. on an average of ten years; last year £ 13.

Killing and looking after £ 60. for 1000 acres.

They are fed in winter with ash boughs, gorse, oat straw, sainfoin, and clover hay.

On the warrens, between Gayton and Tathwell, silver skins have been from 15s. even to 21s. a dozen; but the common grey rabbit is so much hardier, that if a warren be stocked with both, there will, in a few years, be nothing but greys. A rabbit goes to buck the day she brings forth her young, as well known. She goes thirty-one days with young, which are eleven days blind after being born, and eleven more before they appear above ground. She suckles them twice a day for about twenty-two days.

A buck serves 100 does.

Stock upon a good acre 200 couple.

Winter food,—ash boughs, gorse, hay, turnips.

From Louth to Castor, 18 miles; 10 of it are warrens, chiefly silvers; rent 2s. to 3s. an acre.

They plough a part every year for corn and turnips, and laying down again with seeds, let down the fences for the rabbits to enter. Warrens are reckoned profitable, so that some fortunes have been made on them.

In point of skins, those bred about Mayday undergo no change from their white colour, but from a *white rack* become a whole skin. Bred at Ladyday, become black.

In June, white. In July, black. In November, white again ; then in full season, as the carcasses are also. The skins ought to have those colours on the inside when flead.

From 250 acres of land that was sainfoin worn out, and planted with rabbits, the following was the account many years ago ; but all prices, rent, &c. &c. are calculated at the present rates ; and it is to be noted, that the ground being thus new to rabbits, was much more productive than old warren land is found to be, as they breed much better on such new than on old land. Used to kill about 2000 couple ; stock left about 700 couple. Sod banks cost, thirty-five years ago, 1s. 2d. a rood of seven yards, would now cost 2s. ; furz faggots were 7s. a hundred, that is, 5s. for the furz, and 2s. 6d. kidding ; now doubled. Banks will last about seven years in a middling way ; from 3 to 20 : want facing once in seven years, at half the first expence ; want capping in three years with the furz. Laying on or capping 3d. a rood now. It was then reckoned that 250 acres would clear £ 100. besides rent, which then was 1s. an acre. Fencing annually half a mile 800 yards, 133 rood at 1s. £ 6. 13. for facing : furz, a kidd will do a yard ; 2½ miles kidding, at a kidd a yard 4400 yards and kidds, at 15s. now, for 120, or £ 27. 10s. or per annum £ 9. 3s. 4d. add £ 6. 13s. it is £ 15. 16s. 4d. per annum. A warrener £ 35. a cow, fuel, and house ; in all £ 40. Extra labour killing 18s. a week for sixteen weeks, £ 14. 8. Also for a month 18s. a week, £ 3. 12. ; in all £ 18.

Nets and thread 12 at 60 yards each ; last six or seven years ; would cost £ 1. 11s. 6d. Traps 5s. a year. The men who kill will carry. Four horses for six weeks, £ 1. 4s. a week, £ 7. 4s. Charcoal for drying skins 5s. A person to order the skins ; that is, clear from fat, and drying five weeks ; a useful woman will do it, £ 1. Winter



food, for after three days snow they must be served, cannot be less than £ 10. a year on 250 acres.

*Recapitulation.*

			<i>per acre.</i>					
			£.	s.	d.	£.	s.	d.
Rent now	-	-	0	6	0	87	10	0
Tithe	-	-	0	0	0			
Rates	-	-	0	1	0			
Fencing	-	-	0	1	3	15	16	4
Warrener	-	-	0	3	2	40	0	0
Extra labour	-	-	0	1	6	19	0	0
Nets and traps, and charcoal			0	0	2	2	1	6
Horses	-	-	0	0	6½	7	4	0
Winter food	-	-	0	0	0	10	0	0
			<hr/>					
			0	13	7½			

Poison, powder and shot, and sundries; fox skins 1s. each	-		2	0	0
			<hr/>		
			183	11	10
			<hr/>		

*Produce.*

2000 couple at 9d.	-	-	75	0	0
Skins, 9d. to 1s. 3d.; average 1s.	-	-	200	0	0
			<hr/>		
			275	0	0
Expences	-	-	183	11	10
			<hr/>		
Profit	-	-	91	8	2
			<hr/>		

But notwithstanding this, he says, that if he had a warren of his own, he would plough it up for corn, &c. thinking tillage now more profitable than rabbits.

At Partney fair, meeting with Mr. Grant of Withgul,

and discoursing with him upon warrens, he informed me, that a common stock in winter was 3 couple per-acre, and the produce 5 or 6 couple killed; that killing, carrying, &c. might amount to something more than 1s. an acre; the sort *silver sprig*, which will not do well in other counties, where they have been tried. He has now 1000 acres of warren.

Upon 1000 acres, the stock 2600 couple, and kill 5000 couple annually. New land is the most productive. On such a warren the rabbits must have 2 loads of hay a day in a storm; or 2 or 3 large waggon loads a day of turnips. The warrener has £20. a year, and 2 cows; the killers 8s. or 9s. a week, and board for ten weeks. Silver skins now are 10s. a dozen; have been 14s. or 15s. Fences £60. a year; no cross ones; no buildings. The immense occupation of Mr. Grant and his sons, being much the most considerable in the county; with the circumstance of making an ample fortune, made me desirous of seeing him. I called at Oxcomb, but unfortunately for me he was absent.

Twenty years ago, Driby had a warren of 12 or 1300 acres; and the rent of the farm including it £300. a year, which rent has been doubled by ploughing. Mr. Kershaw observed, that the community received next to nothing from warrens.

*Mr. Parkinson.*—Calculation of a warren of 700 acres under rabbits, rent 5s.; standing stock 2000 couple of silver hair, valued to the incoming tenant at 2s. 6d. a couple ten years ago; and demanding a capital of £1400.; and carefully *typed* to catch all extra bucks, so as to leave only one-fourth of the total number of bucks.

Produce 3000 couples for sale, worth, on

	£.	s.	d.
an average of seven years past, £ 15. a			
hundred - - -	450	0	0
But as some are greys, the price £ 10.	300	0	0
	<hr/>		
	750	0	0
	<hr/>		

Take the average of the two, that is,

silver hair of the Wolds, and greys of

Lincoln Heath, it will be on a medium 375 0 0

Or about 10s. 10d. per acre.

Add to this 350 sheep, kept by a course of tillage, that is; ploughing up fifty acres annually for paring and burning for turnips, then spring corn and seeds, which seeds sheep fed one year and thrown out to rabbits; the sheep at 2d. a week for twenty-five weeks, will amount to £ 72. 10s.; this is inferior to the common produce of sheep; but the rabbits will demand hay, &c. to the amount of the difference; and also a team of horses must be kept for the cultivation of 100 acres of land, and carrying the rabbits to market.

The fifty acres of corn will be consumed

by the horses, and master's and war-

rener's cows, &c. - - - 447 10 0

# A Rabbit Warren Farm.

Dr.		£.	s.	d.	Per contra.	Cr.	£.	s.	d.
To rent 700 acres land, 5s. per acre.		175	0	0	By slaughter of 3000 couple of rabbits, £15.	-	450	0	0
To tithe one-ninth		19	8	10	By 300 fleeces of wool, 4 and 5 to tod, about 65 tod; 20s. per tod	-	65	0	0
To town charges		21	17	4	(viz.) 200 ewes, and 100 hogs	-			
To master and mistress's board, and clothing					Sell about 80 he-hogs from turnips, 24s.	-	96	0	0
To 4 children, £10. per year					And about 50 drape ewes, 21s.	-	52	10	0
To 4 servants, £10 ditto, viz.					By 50 acres barley, 3 qrs. per acre, and oats,	-			
3 men, and 1 maid					Deduct seed and horse corn	-	84	0	0
To extra labourers, carpenters, and other workmen					Remains 80 quarters, at 21s.	-			
Total housekeeping		162	0	0	By 20 beasts, to sell about 5 to graziers, £8. per head	-	40	0	0
To Husbandry.					By swine, poultry, &c.	-	20	0	0
A warrener, with house, and 2 cows					Profit in breeding foals	-	20	0	0
To 3 extra labourers mowing corn and hay, repairing, fencing, assisting in killing rabbits, &c.					Total	-	627	10	0
To blacksmith's bill					Expences	-	533	6	2
Carpenter's ditto					Net gain	-	94	3	10
Extra turnip hoers, and hay makers in summer									
		155	0	0					
		533	6	2					

N. B. As the family is maintained out of the farm, the interest of the capital of about £1400. is not charged, because the interest would be only £70. per year, when they are maintained out of the farm with a profit of £94. 3s. 10d.

Mr. Parkinson informed me, that ploughing rabbit warrens near the Green Man on Lincoln Heath, had answered so little to Mr. King, that though he had subdivided it in small inclosures for tillage, yet he afterwards was induced to let the rabbits in again, as it did not answer. Such is the fact ; but perhaps he might look to corn as the principal object of his tillage : in such case, I am not surprised ; for on poor lands, sheep, not corn, should be the great object.

The warren of North Ormsby, occupied by the late Mr. Ansell, is supposed to be one of the best managed in the county.

The rabbits chiefly consist of silver greys, the land of the yearly value, from 2*s.* 6*d.* to 8*s.* and some little of it 10*s.* the statute acre.

Mr. Ansell was of opinion, that lately his warren lands would have paid him better had they been applied to the purpose of growing corn and grass seeds for keeping sheep. The rabbit produce he supposed to be from eight to ten shillings ; in some particular years they have paid from 15*s.* to 21*s.* an acre ; but to obtain any extraordinary profit, very great care must be taken in killing the many different kinds of vermin which depredate, and without the utmost vigilance will quite depopulate the warrens. A considerable expence also attends the necessity there is for night-watchers to protect them from the infinitely worse vermin, the poachers.

The silver grey skins have been sold from 8½*d.* to 15*d.* and 16*d.* per skin ; the last two years they have only brought from 10*d.* to 11*d.* per skin ; but to obtain even these prices, they must be what is called full seasoned, whole skins, and of the choicest colours, with respect to which the fashion varies very greatly. The carcasses of late years have not averaged, net into pocket, more than 4*d.* per couple, after paying the expence of drying them,

and by means of light diligence carts, having them carried to markets, thirty, and sometimes more than sixty, miles to obtain even that sum ; this inconvenience is occasioned by the increased \* number of rabbits kept on the high wold lands in this part of the county of Lincoln, and its being necessary to kill eight or ten parts of a year's slaughter in so short a time as between the second week in November and Christmas, on account of their skins being then only in full prime, and as they are also very soon subject to become putrid (much more so than hares); and their being obliged to be packed close together, very greatly increases the mischief.

Turnips, clover, and sainfoin are the most proper kinds of winter food for rabbits, as also thrashed oats or barley, when corn is tolerably cheap, may be given them with great propriety ; the two latter need only to be allowed when the ground is covered with snow, and when it does not blow about so as to cover the corn when laid down ; but in severe storms turnips are the most proper food, as they can find them by their scent, and will scratch the snow off when covered. Three large cart loads of turnips a day will fodder 1000 or 1100 couples of rabbits, which are about a proper quantity to be left as breeding stock on 500 acres of inclosed warren land. When the rabbits are inclosed in a warren, they very seldom breed more than twice in a year, and in some seasons numbers of them only once, and many of them not at all. After every exertion, it is very probable, that one year in three there will be a failure in the increase, and then consequently it will prove a very unprofitable season.

In heavy snows, a great deal of money must be expended in clearing the snow from the warren walls, in order to keep as much as possible the rabbits within their bounds.

\* This reason is by no means admissible, for rabbits have *decreased*.

The skin of the silver grey is not so generally esteemed for the hatter's business, as that of the common rabbit ; the former are therefore dressed for the China market ; which, for various reasons, fluctuates so much as to render this branch of rural economy a very precarious business. It is necessary to observe, that every year there are a great quantity of what are called half skins, quarter ditto, and racks, sixteen of which are only allowed for as one whole skin.

These particulars were communicated by Mr. William Allison, jun.

Swinehop. The warrens here are found chiefly in the parishes of Binbrook, Towes, Irford, Thoresway, Thorganby (which will soon be destroyed) Croxby, and Rothwell. Of these, Thoresway is the largest ; the rent is very difficult to ascertain, as they are let with farms in the gross ; but in a general way, is supposed to be from 5s. to 7s. Perhaps the whole of Rothwell, *at present*, is not above 5s. Thorganby, Croxby, Rothwell, and Binbrook, belong to Mr. Willoughby. The soil is either a loose deep mold on chalk-stone, or in some places marl ; the natural grass *sbar*. The annual sale per acre may be estimated from 3 couple to 8 : but this will depend on being well wintered ; a good manager will, by feeding well, in the opinion of Mr. Allington, but who has no warren himself, carry the product to 10s. and even 12s. upon new land. The price four years ago was 16d. a skin, last year not above 9d. ; probably 1s. average ; the carcass sells at 10d. a couple. For expences we must estimate a rood of banking at 14d. to 20d. including the coping, whether of gorse or deals. To surround a square mile of 640 acres, there are 914 roods, at 1s. 6d. which is £68. 11s.

A circumstance which makes any account complex, is, that upon many warrens here, as well as elsewhere, they take in annually a certain portion of the warren to break

up by paring and burning, if the turf admits it, for turnips, and then corn, in a short rotation, and throw it out after seeds, taking care not to let in the rabbits the first year, or they destroy the seeds. If the turnips are good, the corn is so ; but Mr. Allington, from breaking up a warren without paring and burning, is of opinion, that the land is not improved by rabbits, further than time making a turf which enables the farmer to pare and burn ; a mode of breaking up he highly approves.

In adverting to any profit that may result from warrens to the occupier, Mr. Allington remarks, that they are a horrid nuisance to the neighbours' corn, new seeds, turnips, and above all to the quicks, which they presently destroy ; and killing what they can of such depredators, is a very small compensation for the evil. In this respect, the laws are deficient, by protecting the rabbits as private property, and leaving no resource but killing them when astray. This observation is peculiarly applicable to such warrens as are not inclosed ; but it is found even with the best fences.

Ride through the estate of Thoresway, 3000 acres a warren farm. Mr. Holdgate, the tenant, had the goodness to favour me with many interesting particulars on this branch of husbandry, which is so little known in printed agriculture. He states the expences of 1700 acres under rabbits, the silver sort, thus :

			£.	s.	d.
Labour, three regular warreners, with extra					
assistance at killing	-	-	85	0	0
Fences	-	-	42	10	0
Winter food	-	-	42	10	0
			<hr/>		
Carried forward	-		170	0	0



			£.	s.	d.
Brought over	-		170	0	0
Nets, traps, &c. &c.	-	-	14	3	4
Delivery	-	-	21	5	0
Rent is said to be 7s. an acre	-	/	595	0	0
			<hr/>		
			800	8	4

The capital employed is that sum, with the addition of stock paid for ; suppose this, as stated by Mr. Grant, 3 couple an acre, at 2s. 4d.

	-	-	595	0	0
			<hr/>		
			1395	8	4
Interest of that sum one year, 5 per cent.			69	5	0
			<hr/>		
			1464	13	4
			<hr/>		

*Annual Account.*

Expences as above	-	-	800	8	4
Interest	-	-	69	5	0
			<hr/>		
			869	13	4
			<hr/>		
Produce 10,000 couple, at 2s. 4d.	-		1166	13	4
Expences	-	-	869	13	4
			<hr/>		
Profit	-	-	297	0	0
			<hr/>		

or £24 per cent. (the five per cent. included) on capital employed. This is very great, reckoned on the capital, but small reckoned by rent, as it amounts to only half a rent. But *suppose* the gross produce £1500. which I take to be nearer the fact, then the account would stand thus :

			£.	s.	d.
Produce	-	-	1500	0	0
Expences	-	-	869	0	0
			<hr/>		
Profit	-	-	631	0	0
			<hr/>		

or £.47. per cent. on the capital.

Take it how you will, it explains the reason for so many of these nuisances remaining. The investment of a small capital yields an interest that nothing else will ; and thus the occupier will be sure never to convert them to better uses. But what says the public interest ? Here are only £200. expences to £600. rent ; what is the population, the industry, the improvement ! the landlord gets the lowest of rents, the tenant makes a good profit ; they divide all, and the rest of the world are little the better for them.

Mr. Holdgate being an excellent farmer, the rest of this great tract of land is as well managed as the warren allows it to be ; but it is to the eye a melancholy scene, more of desolation than culture, the remains only of old fences : no wonder ; what fences can be preserved on a warren ? These circumstances are the sure concomitants of this execrable stock.

I am glad, however, to observe that there is something better on this noble farm of 3000 acres than rabbits ; under that animal there are,

Acres	-	-	-	1700
Corn	-	-	-	350
Grass, turnips, and seeds	-	-	-	950
				<hr/>
				3000

And 700 sheep are kept, with a herd of cattle.

In the many journies I have taken through this kingdom, and the numerous inquiries I have made concerning warrens, I have found more difficulty in gaining intelligence upon this, than upon any other subject. Of the preceding particulars, some, as the articles of Blankney and Ormsby, I *suspect* the correctness; Mr. Parkinson has taken data too complex; but Mr. Holdgate gave me his particulars in a conversation, the colour and circumstances of which induce me to give much credit to it; but the rent and capital employed are supplied. The article of Dalby is correct also, and on good authority. Upon the whole, I trust, this branch of husbandry may be pretty well analyzed from these particulars.

#### SECT. 6.—*Poultry.*

GESE plucked five times a year; at Pinchbeck it is at Lady-day, Midsummer, Lammas, Michaelmas, and Martinmas. The feathers of a dead goose worth 6d. three giving a pound. But plucking alive does not yield more than 3d. a head per annum. Some wing them only every quarter, taking ten feathers from each goose, which sell at 5s. a thousand. Plucked geese pay in feathers 1s. a head in Wildmore Fen.

Inquiring of Sir Joseph Banks's boatman on East Fen, the profits of keeping geese on that watery desert, he gave me the following account of what he did himself:—his stock is eight score; and this year, which is not a good one, he reared 500; in a good year 700, eight the average brood: they sell this year at 2s. which is higher than ever; has sold at 1s. Plucks four times, at 4d. each time (some folks five times), because he thinks more hurts the old ones. His expence in corn is from £20. in fine winters, to £50. in bad ones. He plucks the young

twice or thrice, and gets ten quills from each goose, at 6*d.* per 120.

Average produce	1 <i>s.</i> 3 <i>d.</i> goose ;	1 <i>s.</i> 3 <i>d.</i>	£.	<i>s.</i>	<i>d.</i>
feathers ;	600 at 2 <i>s.</i> 6 <i>d.</i>	-	75	0	0
Corn	-	-	35	0	0
			<hr/>		
Profit	-	-	40	0	0
			<hr/>		

His wife and children do all the labour they demand.

As much conversation of late has passed about inclosure, such accounts are now to be suspected of exaggeration.

#### SECT. 7—*Fish.*

It has been observed by some authors, that the plenty of fresh water fish will depend somewhat on the seasons. I do not know either that the fact is ascertained, or that were it ascertained, it would lead to the means of remedying bad seasons ; however, as facts are very rare, and future combinations possible, I shall here enter the minutes of an annual fishing party held by Sir Joseph Banks in the river Witham ; which, if it does not produce any thing of importance in the natural history of fish, merits a note in the register of rural hospitality ; for I found these fishing parties, which lasted four days, spoken of by many persons with great pleasure. Miss Banks has kept a particular journal of these piscatory excursions, which is decorated with many drawings : she had the goodness to favour me with the following totals.

				<i>lbs. wt. of fish.</i>
In 1788	A carp of $5\frac{1}{2}$ lb.	-	-	1764
1789	A pike of $15\frac{1}{2}$ lb.	-	-	693
1790	-	-	-	1711
1791	-	-	-	842
1792	A salmon of 10 lb.	-	-	1410
	A burbolt of $3\frac{1}{2}$ lb. being 22 inches long, and 11 in circumference			
1793	-	-	-	2644
1794	A perch 2 lb.	-	-	1366
1795	A tench of $2\frac{1}{4}$ lb.	-	-	2567
1796	-	-	-	1562

In Sir Joseph Banks's kitchen is the picture of a pike that weighed 31 lb. which was 13 years old ; he increased therefore about  $2\frac{1}{2}$  lb. annually.

## CHAPTER XIV.

## RURAL ECONOMY.

SECT. I.—*Labour.*

AT Long Sutton from 17s. to 21s. an acre for reaping, yet a vast number of labourers have come on account of the employment the inclosed common has yielded.

At Spalding, in winter 10s. 6d. a week, summer 15s. ; in harvest 7s. 8s. ; and last year up to 10s. 6d. a day. Reaping 12s. to 20s. an acre.

At Brothertoft, labour, in winter, 1s. 6d. the lowest ; 10s. a week the average. Hay 12s. for a month. Harvest 5s. a day for 6 weeks, then winter price. Occasional instances, when there is a scarcity of men, and corn ripens, up to 10s. 6d. a day ; and all prices under ; an acre of reaping 25s. by contract has been known. A head farmer's servant £16. 16s. ; common one £14. 14s. ; a hog boy £6. ; a dairy maid £5. 5s. ; a carpenter, wet and dry, 2s. 6d. ; a mason 3s. ; his labourer 2s. ; beer to none of these prices. Thatching 3s. a square for houses ; 6d. to 9d. a yard for stacks, running measure.\*

\* In the Fens, from the end of harvest till Christmas, in dry autumns especially, the labourer earns, by ditching, &c. at least 2s. per day, nor is less than 18d. given to a day labourer. From the quantity of public works now carrying on from the war, the price of labour is on the increase. From Christmas to Lady-day from 1s. 3d. to 1s. 6d. is given ; from thence to hay time 18d. from hay to harvest 2s. ; and in harvest from 3s. 6d. to 7s. per day ; but 4s. 6d. or 5s. per day is the average price of a reaper for the last three years. This increase of the price of labour is owing in some measure to the scarcity of hands, but more still to the

About Folkingham, in winter 2s. a day ; keep on till hay, then 2s. 6d. for five weeks : for harvest 9s. a week, and board, which is worth 7s. more, till Michaelmas ; then winter ; reaping an acre of wheat 11s. ; mowing an acre of grass 3s. ; hoeing turnips twice 6s. and beer ; a woman, in hay, 10s.

About Grantham, in winter 2s. : summer and harvest 3s. ; but most by contract. To mow an acre of grass 3s. ; to reap, 9s.

At Leadenham, and the villages in its vicinity ; in winter 1s. 6d. ; hay 10s. 6d. a week ; harvest 14s. for six weeks ; reaping 6s. to 10s. ; mowing corn 2s. ; mowing grass 2s. 6d.

At Blankney, 1s. 6d. in winter ; 2s. and beer in hay

sudden ripening of the corn, which brought the harvest fit together in every part of the kingdom.

The consequences of such high prices are very baneful ; the workmen get drunk ; work not above four days out of the six ; dissipate their money, hurt their constitutions, contract indolent and vicious dispositions, and are lost to the community for at least one-third of their time in this important crisis. It is a pity but the legislature could interfere.

It may be wondered at, and reprobated by persons not acquainted with the Fen country, that so much of the corn should be reaped, whereby such an extraordinary quantity of hands are required. In wet seasons it is impossible to mow the grain, it being laid in every direction : and in drier ones, when it can be mowed, it must then be bound up out of the swarth (for to cock it, the barns and stack-yards would be filled with lumber), requires much more barn or stack room, brings with it a great deal of foulness, which would be left out by shearing, and costs more by one-third in thrashing. The price of reaped corn to be thrashed is pretty generally ascertained ; oats at 5s. per last ; beans and barley at 10s. 6d. ; and wheat at 1s. per coomb. Women have not that general employment they ought to have ; but besides weeding and haymaking, they are employed in collecting the sods from off breach land, picking up twitch to burn, knocking about muck, spudding of thistles, and gathering, spreading, and turning of flax ; for twitching and weeding, they have, upon an average, 9d. per day ; for haymaking 1s. ; and about flax they have from 15d. to 18d. per day. In harvest but few women reap who are natives of these parts ; they earn more for themselves by gleaning.

*MS. of the B.*

and harvest ; reaping oats in the fen 15s. ; this year 18s. and two quarts of ale a day ; but the crops quite down.

At Hackthorne, in winter, 1s. 4d. to 1s. 6d. ; in summer 2s. ; that is, from Midsummer to Michaelmas, mowing grass 2s. ; mowing corn 1s. 6d. ; reaping wheat 6s. to 8s. ; three bushels of malt to each man in summer.

At Norton, twenty years ago, 6s. for one half of the year, and 8s. for the other ; now 9s. in winter half year, and for summer half year 12s. and in harvest 18s. ; but some less. A woman, in hay, 8d. and 9d. ; harvest 10d. and 1s. Head man, 13 or 14 guineas. Reaping 6s. to 8s. ; grass 2s. 6d.

At Knaith, &c. all the year, except harvest, 10s. 6d. a week ; harvest 2s. 6d. a day. Reaping 10s. 6d. an acre ; woman, in hay, 1s. 3d.

In Axholm, winter 1s. 4d. to 1s. 6d. ; summer 1s. 6d. to 1s. 8d. ; harvest 2s. 6d. ; reaping white corn 7s. to 8s. ; beans 10s. ; mowing grass 2s. and beer ; corn the same ; Wages, head man, £13.

About Normanby, Burton, &c. in winter 1s. 3d. that is, from Michaelmas to Lady-day ; from thence to hay time, about 1s. 6d. ; in hay 2s. 6d. ; in corn harvest 3s. to 3s. 6d.

26 weeks at 1s. 3d.

10 at 1s. 6d.

9 at 2s. 6d.

7 at 3s. 3d.

Rise in four years, Winter 1s.

Spring 1s. 3d.

Hay 1s. 6d.

Corn 2s. 6d.

Twenty years ago Winter 10d.

Spring 1s.

Hay 1s. 6d.

Corn 2s.



The women are not industrious; for though by spinning flax they might earn 4*d.* a day, they content themselves with 3*d.*; but many not 2*d.*

At Wintringham, in winter and hay 2*s.*; in harvest 3*s.* 6*d.* Women 1*s.*; some 1*s.* 6*d.* and in harvest 2*s.* 6*d.* Reaping oats 15*s.*; wheat 11*s.*; mowing barley 2*s.* 6*d.* ditto grass 2*s.* to 2*s.* 6*d.* Hoeing turnips 5*s.* to 6*s.* Head man's wages £15. 15*s.*; some more; ploughman £12. 12*s.*

Labour at Barton:

Winter 10*s.* a week Michaelmas to May-day.

12*s.* May-day to harvest.

3*s.* a day, harvest.

Mr. Graburn, mow and sheaf, 5*s.* 6*d.*

At Humberston in winter and till hay 2*s.* Hay 2*s.* 6*d.* 3*s.* Harvest 4*s.*; that is, 3*s.* and food. Wages of a head man fifteen or sixteen guineas. A woman in hay time, &c. 1*s.*

At Tathwell, and its vicinity near Louth, in winter till May-day, 10*s.* 6*d.* a week; then to hay 13*s.*; in hay 18*s.* harvest, and to Old Michaelmas 24*s.*; all included in all. Reaping 12*s.* to 20*s.*; average 15*s.* Mowing grass and corn 3*s.* 6*d.* Hoeing turnips 5*s.*; and they run over an acre a day. Thrash wheat 3*s.* 6*d.* a quarter; spring corn 1*s.* 6*d.* Woman in hay 1*s.* 3*d.*; ditto reaping 3*s.* 6*d.*; and hands not to be got at any price; much work left undone that would be executed, but hands not to be got. Carpenter 10*s.* 6*d.* a week, bed and board; mason 2*s.* 6*d.* and board, or 4*s.* without; thatcher 10*s.* 6*d.* a week, and board; man servant £15. 15*s.*; lad £9. or £10; hog boy £4. 4*s.*; all washed for.

Labour about Saltfleet in winter 1*s.* 6*d.*; in spring, 2*s.* Women in hay, 1*s.* 2*d.*; in harvest, 3*s.* 6*d.* a day for July, August, and September. The inhabitants have not much to do; yet there is now ten times as much arable as there was in Mr. Neve's memory.

About Spilsby, &c. winter, 1*s.* 6*d.*; in spring, 10*s.* 6*d.*

a week ; in hay, 15s. ; in harvest, 18s. Woman in hay 1s. ; a woman for reaping 2s. Reaping by the acre 7s. to 21s. Mowing spring corn, 2s. 6d. a day ; ditto grass, 3s. 6d.

Through the hundred of Skirbeck 9s. a week, for five months ; 10s. 6d. for four months ; and 17s. for three months. Reaping wheat 10s. to 20s. ; ditto oats, 10s. to 18s. ; beans 9s. 6d. ; mowing spring corn 3s. ; mowing grass 4s. Hoe turnips 6s. Woman a day in hay 1s. 4d. ; in harvest 2s. 8d. A carpenter 2s. 8d. A mason and server 5s. 2d. together. From twenty to thirty years ago, 1s. a day for six months ; 1s. 2d. for three months ; and 2s. 2d. a day for three months.

At Swinop, in winter, not regular labourers, 1s. 8d. ; in spring 2s. ; in harvest 2s. and meat. A woman in hay 1s.

At Sudbrook, in winter 1s. 6d. ; in the spring 2s. ; in hay and harvest 2s. 6d. and beer or 6d. ; but very little done by the day. To reap an acre of wheat 7s. to 10s. ; to mow an acre spring corn 2s. 6d. ; hay the same. To hoe turnips once 4s. to 5s. To thrash wheat, 2s. 6d. a quarter to 3s. 6d. in summer ; barley 2s. to 2s. 2d. ; oats 1s. Wages £ 16. 16s. ; others £ 14. ; lads 9 or £ 10. ; a muck boy £ 6.

Labour about Grimsthorpe 1s. 6d. in winter, from Michaelmas to Lady-day ; then to hay 2s. ; in harvest 3s. ; and in the fen to 5s. Reaping 10s 6d. ; mowing corn 2s. ; mowing grass 3s. Thrash wheat 3s. a quarter ; last year 2s. 3d. to 2s. 6d. ; barley 20d. ; oats 1s. ; beans 1s. 3d. Hoeing turnips 6s. loos.

At Brocklesby, in winter, from Martinmas to Lady-day, 1s. 6d. ; thence to mowing 1s. 8d. 1s. 10d. ; in hay 2s. ; in harvest 12s. 6d. a week, and meat. Head teamman, wages £ 15. 15s. ; next £ 12. 12s. ; lads £ 10. Reaping wheat 6s. to 13s. 6d. ; average 9s. 6d. Mowing grass and spring corn 2s. Woman in hay or harvest 1s.

At Swinop, with labourers who have cottages, a cow and a pig kept for £ 5. 5s. a year. To mow corn and hay 1s. 6d.; to thrash wheat 2s. 6d.; barley 1s. 2d.; oats 1s. In winter 1s. 6d. a day; at Midsummer 2s.; in harvest 2s. and meat. Hoeing turnips 5s. 6d.

*Recapitulation.*

Places.	Winter, per week	Spring, per week	Summer, per week	Harvest, per week	Reaping, per acre	Wom. sum.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Long Sutton	—	—	—	—	19 0	
Spalding -	10 6	—	15 0	42 0	16 0	
Brothertoft	10 0	—	12 0	30 0	18 0	
Folkingham	12 0	12 0	15 0	16 0	11 0	5 0
Grantham	12 0	12 0	18 0	18 0	9 0	
Leadenham	9 0	10 6	10 6	14 0	9 0	
Blankney -	9 0	9 0	12 0	12 0	15 0	
Hackthorne	8 6	8 6	12 0	12 0	8 0	
Norton -	9 0	9 0	12 0	18 0	8 0	5 0
Knaith -	10 6	10 6	10 6	15 0	10 6	7 6
Axholm -	7 6	10 0	10 0	15 0	7 6	
Normanby	7 6	9 0	15 0	19 6		
Wintringham	12 0	12 0	12 0	15 0	11 0	
Barton -	10 0	10 0	12 0	18 0		
Humberston	12 0	12 0	16 0	24 0	—	6 0
Tathwell	10 6	12 0	18 0	24 0	15 0	8 0
Saltfleet -	9 0	12 0	14 0	21 0	—	7 0
Spilsby -	9 0	10 6	15 0	18 0	14 0	7 6
Skirbeck -	9 0	10 6	17 0	17 0	15 0	10 0
Swinop -	10 0	12 0	12 0	24 0	—	6 0
Sudbrook -	9 0	12 0	15 0	18 0	8 6	
Grimsthorpe	9 0	12 0	12 0	18 0	10 6	
Average	10 0	10 9	13 6	20 0	12 0	6 9

In order to see the amount of the year's earnings, we must call the winter twenty-six weeks, spring nine, summer nine, and harvest eight, which not uncommonly in price lasts till Michaelmas.

		£.	s.	d.
26 weeks at 10s.	-	13	0	0
9 ——— at 10s. 9d.	-	4	17	7
9 ——— at 13s. 6d.	-	6	1	6
8 ——— at 20s.	-	8	0	0
		<hr/>		
		31	19	1
		<hr/>		

Which is near 12s. 6d. a week the year round.

And this I take to be under the truth, were it to be correctly known. Hence we may determine, that labour is probably higher than in any other county in the kingdom.

#### SECT. 2.—Provisions.

Boston; price of mutton 6d.; beef 5½d.; butter 1s.; cheese 6d. Coals 27s. and in winter 30s. and 32s. per chaldron.

Price at Folkingham; mutton 6d.; beef 6½d.; butter 10d.; cheese 7d. Coals 11½d. per cwt. At Norton, coals 20s. a chaldron, 48 bushels or strikes, at the barge; butter 20d. a cake, of 2 lb.

The Trent furnishes Gainsborough, &c. with some sorts of fish in great plenty. Salmon, which rises to 46lb. at 1s. a pound; pike, up to 17 lb. at 6d.; perch, to 5 lb. at 6d.; tench, to 4 lb. at 1s.; carp to 10 lb. at 1s.; eels plentiful; but carp and tench rare. Butter 10d. per pound; the poor buy at 8½d.; and twenty years ago at 2½d. Wild ducks 3s. to 3s. 6d. a brace; teal 1s. 6d. a couple; Grey plover 1s. 6d. Coals, 17s. for 48 bushels.

At Haxey in Axholm, coals 16s. a ton, laid in.

At Burton, Normanby, &c. the chaldron 48 bushels,

in summer on the river side, 20s. Butter 10d.; mutton 6d.; beef 6s. 6d. a stone; veal 6d.; pork in winter 5s. a stone; potatoes 3s. a sack; salmon 1s.

At Barton, coals come from near Wakefield; the sloops that carry corn and wool bring back coals, and many go on purpose; the best Flocton 20s. a chaldron of 48 bushels: other sorts so low as 16s. and 18s. Mutton 6d.; beef 6s. 6d. a stone; pork in winter 7d.; butter 9d.; in winter 1s. In winter, cod 3d. a lb.; salmon caught there, 1s. to 1s. 6d. a pound.

At Spilsby; mutton 6d.; beef 6s. stone; butter 9d. which eight years ago was 3d.

At Louth; butter 9d. has been accidentally 1s. 3d. I heard of a pleasant story of the corporation ordaining that all butter not 18 ounces to the pound to be taken away: I wonder (if the fact be so) who made these gentlemen legislators? Thirty-eight years ago it was 3d.; geese 3s. 6d. or 4d. per pound; turkeys 6d. per pound, or 4s. 6d. to 6s.; beef in harvest, eleven years ago, 2½d.

## CHAPTER XV.

## POLITICAL ŒCONOMY.

SECT. 1.—*Roads.*

UPON its being proposed some time ago to make a turnpike to join the Spilsby road from Tattershall, the proposition was rejected, without throwing the expence by tolls on the public ; and the issue shews, that without a very general public spirit, and proprietors being of ample fortune, or great spirit of exertion, such schemes rarely succeed ; here the business has been well and effectually done through Revesby ; but I understood, that for a large extent of it the road is still much neglected.

In the hundred of Skirbeck, to Boston, and thence to Wisbeach, they are generally made with silt, or old sea sand, deposited under various parts of the country ages ago, and when moderately wet, are very good ; but dreadfully dusty and heavy in dry weather ; and also on a thaw they are like mortar.

Take the county in general, and they must be esteemed below par.

SECT. 2.—*Canals.*

THERE is an inland navigation from Boston, by Brothertoft farm on the Witham, cut to Lincoln, and then by the Fossdyke canal to the Trent, and thence to all parts of Yorkshire, Lancashire, &c. Rotherham having been, in good times for the manufacture, a great market for cattle and sheep, Mr. Cartwright executed a boat for taking sheep. It will carry eighty in two parcels, one in the

hold, and the other on the deck ; the latter secured by netting, supported by stanchions. The deck is of moveable hatches, covered with tarpawling to keep free of urine ; to give air below, a line of hatches along the centre moveable ; and the upper manger around that aperture. By this means they can be conveyed very commodiously, and saving the loss of 3s. a head by driving. See the annexed plate.

At Sleaford, a new canal made from the Witham to Boston, finished in 1796, and has but lately begun to operate.

Another, the Grantham canal, from Grantham, and goes into the Trent near Holm Pierpoint.

The Ankholt cut extends, and is navigable from Bishop Bridge to the Humber, at Ferryby Sluice.

Also from Horncastle to the river Witham at Dog Dyke near Tattershall ; but not yet completed.

Another from Louth to the sea at Tetney.

At Grimsby they have raised £ 20,000. by subscription, to improve the haven, by a new cut, to bring ships of seven hundred tons to the town ; but in the execution of the work they have managed so as to waste much money ; and have now applied to Mr. Rennie for his advice how to proceed. Much of the earth, for want of precaution, has sunk in again. They have fine speculations, if they succeed, of rivalling Hull, as the great entrepôt of the Humber.

The conduct of engineers is complained of as a great obstacle to navigations ; for after giving their plans, they leave you to yourselves ; and then difficulties arise in which the people are ignorant, and upon application to them, and ready to pay, cannot have their attention. Horncastle to the Witham below Tattershall, act passed, and money raised ; and every thing has been ill done, for want of that attention which engineers ought to give ;

thus many thousand pounds were very ill spent.—Subscriptions £15,000. and £6000. more borrowed.—Tolls last year brought £250.

The navigation from Boston to the Trent is not at present open from the carrying place at Lincoln bridge ; but the act being passed, the work will be executed next year, to the benefit of Lincoln, as well as all the country.

From Grantham to Nottingham, thirty-three miles, there is a very fine canal just completed, which cost £100,000, and from which very great returns are expected. It passes near some fine beds of plaster, which will probably be productive ; and lime is already brought in large quantities from Criche in Derbyshire.

### SECT. 3.—*Manufactures.*

Mr. Smith at Gainsborough has a ship of seven hundred tons on the stocks there ; she will cost £3800. : he builds many. A pretty considerable fabric for brushes there ; also coarse hemp sacking.

About Normanby, Burton, &c. there is a good deal of flax spun, and woven into linen ; do not earn above 3*d.* a day at it ; but owing to indolence.

To establish a woollen manufacture at Louth, was a favourite scheme in the county some years ago. To build a mill for spinning long and short wool, 1792, the subscription £1540. :—the man broke ; great difficulties ; at last ended in a small establishment.

Mr. Chaplin established a machine at Raithby near Louth, a *Big Ben* for combing wool, invented by Mr. Edmund Cartwright ; he lost a great deal of money ;—a fire-engine there for it ;—all now gone and done with.



A lee of woollen yarn measures in length eighty yards. A hank of ditto, by the custom of Norwich, consists of seven lees.

	<i>Yards.</i>	<i>Miles.</i>
24 hanks in the pound is esteemed good spinning in the schools -	13,440	8
70 hanks in the pound is esteemed superfine spinning at Norwich -	39,200	22
150 hanks in the pound were spun in 1754, by Mary Powley of East Dereham in Norfolk; and this was thought so extraordinary, that an account of it is entered on the registers of the Royal Society	84,000	48
300 hanks in the pound have already been spun by Miss Ives of Spalding; and though this young lady has carried the art of spinning combed wool to so great a degree of perfection, she does not despair of improving it still farther	168,000	95

The manufacturers of Norwich, zealous to encourage Miss Ives's ingenuity, are desirous of improving their looms in such a manner as will enable them to weave her delicate yarn. Mr. Harvey of that place has already manufactured some that is very fine; and he is at present engaged in weaving her finest sort into a shawl, the texture of which is expected to equal that of the very best that have hitherto been brought from India.

#### SECT. 4.—*Poor.*

The women in Holland Fen spin flax: the price for spinning is the price of the flax; when 8*d.* per pound, 8*d.* for spinning; now 10½*d.* and the same spinning. Earn about 6*d.* a day. In general, they are all to be considered as well off; no where better:—constant employment at high wages. Rent of a cottage with a garden

£1. 11s. 6d. to £3.; in common £1. 11s. 6d. to £2. 12s. 6d.

Major Cartwright remarks on the principle and the policy of the English poor laws. “ Dr. Franklin, in his letter published at London, I believe reasoned well; but it might now be found impracticable wholly to change the system. The error of those laws, however, if an error it be, might gradually be corrected; to the advantage and comfort of the poor themselves, and to the relief of the rest of the community, on whom the poor's-rates are now so burthensome. To interweave *universally* with the laws for maintenance of the poor, the simple, natural, and admirable principle of the friendly societies; so as necessarily to induce, in a way not to be avoided, the rational practice of making, during health and abundance, some provision for a time of sickness, seems to be in every view of it, a measure of the greatest wisdom and humanity; and calculated to have a happy effect on the moral character of the poor. If their earnings would not admit of it, their wages ought to be raised; but that their condition does admit of it, is proved by the numerous societies which exist in all parts of the kingdom. What the sober and provident do voluntarily, the idle and dissolute ought to be compelled to do. But in touching on this subject, I had principally in view to point out a very material defect, which runs very generally, I fear, through the rules of such societies: it is the defect of not making any provision for medical assistance when a member is ill. He is allowed out of the box sick pay, merely for his subsistence; but how is that to cure him of his disease, or obtain him the medical assistance of which he stands in need? He has the parish, it is true, to apply to; but in such cases, the poor man's application is seldom made till he thinks himself dying, and even then seldom complied with so soon as the case requires. Those who have any experience amongst the country poor, must know that

their sufferings are great, from these causes; that the lives of many are sacrificed, and that many others languish for years with ruined health; when with timely aid, and a pennyworth of medicine, they might have enjoyed health and strength; the support and comfort of their families, and adding to the prosperity of their country. As the best remedy which, in the present state of things, I can suggest, I beg leave to mention what is practiced in every considerable fishing harbour of Newfoundland: A skilful surgeon is encouraged by the merchants to settle in the place; and the fishermen and artificers, by a small contribution each, make him a competent salary. For this contribution, every subscriber is intitled to attendance and medicine; and as it is the surgeon's interest to keep his subscribers in good health, he is early in the administration of medicine and regimen; and even anticipates application, when he reads the approach of disease in a pale countenance, or a languid gait. It is on this principle, that I have drawn up a plan for the benefit of the poor of this township, and others in my employment; which is likewise open to such other poor as choose to become members of our society. Having met with an active surgeon, who accepts of such a subscription as we can raise, I hope the last hand will be put to the design in a few days."

About Folkingham, the women spin flax and hemp that grows in Holland Fen, and earn 6*d.* a day at it. Rent of a cottage and garden 4*s.* and if land for a cow, 2*s.* an acre; they have three acres for a cow; and, in the new inclosures, find great comfort in having it.

The management of Charles Chaplin, Esq. at Blankney, and in the other lordships which he possesses, cannot be too much commended; he assigns in each a large pasture, sufficient to feed a cow for every cottager in the place; besides which he lets them a small croft for mowing hay, to keep their cow in winter, which, with the assistance

of a pig and a garden, are found to be of the greatest comfort to them. Upon inquiring what were poor's-rates,—8*d.* in the pound! In another parish, 15*d.* nominal rent. Men are apt to complain heavily of poor's-rates in many counties, yet take no steps to remedy them. Here is an instance which strongly unites with those which Lord Winchelsea has so ably explained, to prove one great means of keeping rates down, by increasing benevolently the comforts of the poor. They all get cows here without difficulty; “let them but land, and they will be sure to find stock for it,” was the answer.

At Hackthorn, rent of a cottage 20*s.*; if a cow, £3. 10*s.*; have enough for winter and summer food; not one-fourth have them; but in some towns a good many. If land could be got, all would have cows; if a cow dies, they get collections for it. The women here spin flax; a quarter of a pound of twelpenny, or 3*d.* is a day's work; but earn rather more by coarse work.

In the new inclosure of Glentworth, on Lincoln Heath, I saw some large pieces under various crops, that were in a most slovenly and wretched condition, run out, and almost waste; and on inquiry found they were allotments to cottagers, who, each knowing his own piece, cultivated in severalty within a ring-fence; it is a strong instance to prove that their shares ought always to be given in grass; they are unequal to any other tillage than that of a garden. At Kirton, in the new inclosure, there is in the vale 28 acres of grass in one close, and 22 in another; one for the cottagers' cows in summer, and the other for hay; fifty in all; this is good, though not equal to every man having his own separate. None here find difficulty in getting cows, if they can but get land. By the proportion, 28 acres meadow, near 1½ acres each cow, which yields two loads of hay for each gate. This fifty acres is worth £50. rent for 16 cows for the whole

year ; but they pay £4. 4s. or 28s. an acre ; thus the land lets better by 8s. an acre, at the same time a great benefit to them.

It is singular that the labouring poor, with the extraordinary high price of labour at Norton, Kirton, &c. consume very little meat, except the stoutest labourers at task work, who earn 3s. a day ; these have for dinner some meat in a pye ; all consume a good many potatoes.

Upon Sir John Sheffield's estate of twenty square miles of country, the rents of the cottages have never been raised, and to prevent all oppression, they have been taken out of the hands of the farmers, and made tenants to the landlord ; they pay little or nothing, or rather less than nothing, for the cottage, as the land is worth more than they pay for both. For a comfortable habitation, a garden for potatoes, of a rood or half an acre, called a *garth*, with summering and wintering of two cows, which enables them to keep two or three very fine pigs (but never any poultry), they pay 40s. This great indulgence has no ill effect ; they are very clean in every thing ; remarkably well cloathed ; no children in rags ; their beds and furniture good ; are very sober, and attentive to church ; but not equally so in educating their children to be industrious. Let me, however, note, that in the great extent of this estate there is but one public house ; a remarkable instance, that speaks strongly upon a point of infinite importance to the national manners and prosperity. In the parishes of Flixborough and Burton, the principal of the estate, poor's-rates are, at the highest, 1s. 10d. and this owing to militia laws, and some contested settlements. Upon Mr. Goulton's estate, where nearly a similar system takes place, the rates are only 1s. The cottagers are very numerous on Sir John's estate, therefore if a different system was embraced, and their habitations, gardens, and cow-grounds were raised to as much as might be,

£200. a year might be added to the rents. This sum would equal 1s. in the pound on the poor's-rates of these parishes. This is a very singular fact, which deserves great attention ; for it may be fairly concluded, that more than that is saved by this uncommon system of benevolence, for by that, and by no means from calculation, has it arisen. At this valuation of £200. a year, they would still be on a par with others. They live in them from father to son; and even leave their cottages through confidence that no child or widow will ever be turned out, unless for offences that do not occur ; and the effect is so great, that there is a reliance on the attachment of the poor which nothing else can affect. Population increases so, that pigs and children fill every quarter. And at Burton, &c. no cottages have been pulled down, but several new ones built ; in the last twenty years the baptisms at Burton have exceeded the burials by 136 ; and though some have certainly emigrated from the parish, yet by no means in any thing like that proportion, as is visible in every circumstance that can be recurred to.

The women are very lazy ; I have noted their indolence in spinning ; Mr. Goulton's expression was, " they do nothing but bring children, and eat cake ;" nay, the men milk their cows for them ; but the men very sober and industrious.

At Alkborough, 9d. in the pound.

Mr. Elwes' cottagers at Roxby, have also each two cows, and very good houses.

In all this country, the common-gate for a cottager's cow is 2 acres for winter, and 1½ for summer.

At Wintringham, upon Lord Carrington buying the estate, he made all the cottagers tenants to himself, and all have cows and gardens.

Lord Yarborough's cottagers have all cows and a garden.

Mr. Lloyd of Alesby has no labourers that have not

cows ; and it is the same with those of Mr. Skipwith at Alesby. The custom seems general through all the country.

At Humberston, Lord Carrington has paid the same attention to them as at Wintringham. The whole of the parish, near Grimsby, in Lincolnshire, is his property ; in that parish there are thirteen cottagers, every one of whom has conveniences for the keeping of one cow, and some for the keeping of two cows. The land on which the cottages stand, with the little paddocks and gardens adjoining them, is in all about sixteen acres. Besides which, at a distance of a quarter of a mile from the town, about sixty acres of land are appropriated to the use of the cottagers. This land is divided into two plats, one of which is a pasture for the cows of the cottagers in summer, and the other is kept as meadow land, to provide hay for them in the winter. Each cottager knows his own little piece of meadow land, and he lays upon it all the manure which he can obtain, in order that he may have the more hay.

When one of the two plats of land has been mown for two or three years, it will be converted into a summer pasture, and the other plat will become meadow land, so that no part of the land in the occupation of the cottagers will be injured by constant mowing.

The cottagers are totally independent of the larger farmers, as they hold their cottages and lands directly of Lord Carrington, and not as subtenants. This gives them a degree of respectability which they would not otherwise enjoy ; and their situation is the more desirable, as the rent they pay is less than the rent paid by the farmers in general. But it is certain that, in numberless places in the kingdom, many a poor cottager would rejoice to give the utmost value for as much land as would keep a cow, if he could obtain it.

Lord Carrington is the patron of the living of Humberston ; and in addition to the comforts which have been bestowed on the poor of the town, in the way which I have mentioned, his Lordship has been careful to give the living to a most respectable conscientious clergyman, who has much at heart the religious and moral improvement of his parishioners. The labours of the clergyman have produced great good ; the cottagers are sober and industrious ; and it is not known that any man in the parish lives in habitual immorality. Soon after the clergyman was presented to the living, he was assisted by Lord Carrington to establish a school, much for the benefit of the youth of the parish.

The poor's-rates in the parish of Humberston have never amounted to more than 9*d.* or 10*d.* per pound on the rental, and sometimes not to more than 6*d.* This is undoubtedly to be attributed to the attention which has been paid to the poor in various ways, and particularly to the support which they have derived from the small quantities of land which they have occupied.

At Tathwell, &c. near Louth, all the labourers on Mr. Chaplin's estate have two cows, two pigs, and a few sheep, all for £4. a year.

At Saltfleet, &c. most of the poor have cows. It is a general rule for every grazier and farmer to keep cows for his regular labourers, at a low joist ; and on the Wolds it is universal, one or two cows, and a pig or two, with a few sheep. In the Marshes the poor eat a great deal of bacon ; very few but what kill a pig, and some two, feeding them much with potatoes, and some barley meal ; and few are without their piece of potatoe ground for their families and pigs ; in general living very well. Shepherds here, who have two or three hundred acres to look after, live very well indeed.

About Spilsby, Dalby, &c. the generality have cows,



excepting those who are maintained by the parish ; and are upon the whole extremely well off.

Hundred of Skirbeck. Mr. Linton at Freiston. Poor's-rates having gradually increased, it is conceived that one means of preventing the continuance of that evil might be effected, by allotting so much land to cottages as will enable the labourer living in them to keep a cow, a pig, and a very few sheep ; chiefly raised cade lambs. About four acres of tolerably good land would answer this purpose. It is upon this idea, that Mr. Linton's grandfather and father continued allotments of this sort to several of their cottages, which Mr. Linton himself has also continued, and formed others. In general, they have from two to seven acres at the rent of the country, paying about 40s. for the cottage, exclusive of the value of the land. By means of this they keep from one to two cows, a pig or two, but some only sows, kept for one litter, and then fattened. Their sheep system is to keep on the ground in winter as many ewes or hogs as the land will support, buying lambs in the spring to be reared as cades, for which they give 3s. each, which they sell either in the ensuing autumn, or the succeeding spring, at upwards of 17s. in the former season, and to 24s. in the spring. Thus a man who has four acres, will keep a cow, a pig, and five breeding ewes, and be able to raise five cade lambs in the spring. Fencing and digging the garden, he does himself, in mornings and evenings ; all other attention by his wife and family. He fattens the calf and sells it to the butcher. He sells some butter, except when the lambs are rearing ; but this varies of course with circumstances. Mr. Linton has not observed, that having land in this manner has any effect in taking them from their work, saving a day or two for their hay. And that the system tends to bring up their families in habits of industry ; and he scarcely knows an instance of families thus provided,

applying to the parish for assistance ; and he is well convinced that he loses nothing by this application of the land. He thinks that there are not many difficulties in their procuring money for thus establishing themselves, as, with a view to it, servants take care to save money enough for this object before they marry. And a widow is rarely such long, from the eagerness there is to get into cottages thus circumstanced.

It is remarkable, that friendly societies do not flourish at all in the hundred of Skirbeck. There was one in Freiston, and another in Leak, and both are broken up ; because the fund increasing much, they divided their money, and when demands came upon them they were bankrupts through inability to pay. In the hundred of Kirton there are some.

At Swinhop, Mr. Allington's regular labourers (and it is the same all through the country) have cows. If they are rich enough to buy themselves, they do it, if not, the landlord finds them cows, but in that case he has the calf gratis every year ; but they like best to have their own cows, and they generally manage to get the money. Two labourers are now building cottages on leases of 21 years, at an expence of not less than £30. each. The way the cows are fed, is with the farmers own, both in summer and winter ; the value of keeping a cow is estimated at £5. at least, for they eat two tons of hay, besides straw. A cottage and garden is reckoned to be worth 40s. to 50s. None have sheep, but all a pig, which they fatten with gleaned corn ; at other times run also with the farmer's pigs.

Many of the cottagers about Sudbrook have cows, a pig, and two or three caddle lambs ; but it is not universal ; Mr. Ellison's bailiff informed me, that there are instances which shew, that the benefit of the practice depends much on the substance and management of the man ; he has

known that a family with a cow, &c. very poor, and in uncomfortable circumstances, and when they have had their cow no longer, to have been much better off; and this he attributes to their sometimes depending too much on their live stock, and neglecting their regular labour, getting bad habits from it: but it is quite contrary with the sober and industrious, who are much more comfortable from having cows. All have from half an acre to an acre of land for potatoes, &c. They pay for a cottage and an acre, from 40s. to £3.

It is much to the credit of Lincoln, that I can rank the card assemblies of that place, as a distinguished means of charity; it is not a mere accidental circumstance that now and then operates; for there is no year that passes, which does not produce very many cases of necessity and misfortune thus relieved; a gentleman of that place said, he had known forty instances in a short period of time.

At Marston, which is a populous village, I remarked that every cottage has a small field of half an acre or an acre, with a garden, and a little hay stack; and each has four or five acres besides, for their cow in summer. They have, besides, a pig or two, and some a few sheep; and as the land here does not always suit to remain in meadow, they plough and lay it down again, and their crops are good, and pay them well. This only in the small piece by the cottage. The whole was a sight that pleased me much.

Upon the Duke of Ancaster's estate, they have from 3 acres to 8, and some 14 or 15, upon which they keep a couple of cows, a few ewes, and always a pig or two, for which they pay from 10s. to 20s. an acre. It is found a very great benefit to them, and at the same time they are enabled to bring up their families without the aid of the parish. Not a cottager on the Duke's estate that ever demands the aid of the parish, unless very great sickness

befalls them ; and they have ideas which spurn the aid, unless circumstances force them to it. They pay for a cottage and garden 20s. to 40s. and in general the land for their cows joins the house ; and in consequence this does not make them bad labourers, but on the contrary, they are remarkable for being orderly, decent, church-going men, who behave themselves well. Poor rates at Grimsthorpe *by the acre* not 1s. for every thing ; but in Sunstead 5s. last year ; owing to the mechanics and other little tradesmen having taken many apprentices before the inclosure : now it is expected they will reduce them by a different system.

Upon the new inclosures they have not pulled down houses, but built new ones.

Upon soils clay and mould, which do for grazing, inclosure changes arable to grass ; but upon creech continued arable.

It is impossible to speak too highly in praise of the cottage system of Lincolnshire, where land, gardens, cows, and pigs, are so general in the hands of the poor. Upon views only of humanity and benevolence, it is gratifying to every honest heart to see that class of the people comfortable, upon which all others depend. This motive alone ought to operate sufficiently to make the practice universal through the kingdom. But there are also others that should speak powerfully to the feelings even of the most selfish. Wherever this system is found, poor's-rates are low ; upon an average of the county, they do not amount to one-third of what is paid in Suffolk ; and another object yet more important, is the attachment which men must inevitably feel to their country, when they partake thus in the property of it. It would be easy to expatiate on such topics, and indeed they can hardly be dwelt upon too much. But the great object which ought to employ every heart and hand, is to devise the means of rendering

the system universal. This comes with peculiar propriety within the scope of the Board of Agriculture ; nor do I see the use of surveying the whole kingdom, and attempting to discover every local circumstance that merits attention, if measures are not founded on the knowledge thus gained ; if the Board does not follow such clues, or sift such subjects to the bottom, nor ascertain the best means of rendering universal, systems which have so much to recommend them. Well adapted premiums would here do much, probably in animating landlords to the work of benevolence, certainly in procuring still larger and more varied information, which is wanting, and particularly on the best means of carrying the practice into effect on poorer soils, where difficulties principally occur. By attaining such knowledge as is within the power of so respectable a body, when its energy is thus brought into play, the right means of legislative interference would probably be discovered, and the Board would find itself in a position respectable, because unquestionably useful, between administration on one hand, and the people on the other : an office of intelligence gleaned from the whole kingdom, and of ready application to many great measures of political economy. This is but one, though an important instance ; many others might be named, were this a proper place.

#### SECT. 5.—*Population.*

I FOUND ideas afloat, that the country, in some districts, was not so populous as it had been ; chiefly founded on the militia lists : one man is now taken in seven or eight, and once it was only one in twelve or thirteen ; and vast numbers have enlisted in the army, which is singular in a country where wages are so high. But it was well observed on this by Mr. Chaplin of Blankney, that perhaps this circumstance was the cause ; such

wages enabled them to get drunk and acquire idle habits ; and then playing the fool was not surprising.

In Gainsborough, something above 1200 houses.

I wished to procure, while in the county, the births and burials of many parishes, but was unable to effect it ; a few I was favoured with ; some of which will shew in what manner inclosure has operated to diminish or increase the people.

Wintringham was inclosed in 1764 ; the Rev. Mr. Knight favoured me with the

Births from 1732 to 1763, both inclusive, being	
32 years	413
Ditto from 1765 to 1796, both inclusive, being 32	
years	607
Increase since the inclosure	194
Deaths from 1732 to 1736	354
1765 to 1796	398
Increase	44
Difference between the births and burials, 1732 to	
1763	59
Ditto, 1765 to 1796	209

The comparison in this parish is therefore striking in every point of view, and proves that a vast increase of population has taken place since the inclosure.

Horbling was inclosed in 1764 ; I owe the account to the Rev. Mr. Shinglar.

Births in 33 years before the inclosure	385
Ditto in 33 years * since the inclosure	350
Diminution	35

\* The year of inclosure included.

Deaths in 33 years before the inclosure	-	390
Ditto in 33 years since	-	348
		<hr/>
	Diminution	- 42

In this parish, therefore, births have lessened.

Billingsborough was inclosed in 1771; the same gentleman favoured me with this also.

Births in 26 years before the inclosure	-	360
Ditto in 26 years since the inclosure	-	444
		<hr/>
Increase	-	84

Deaths in 26 years before the inclosure	-	390
Ditto in 26 years since	-	475
		<hr/>
Increase	-	85

Here, births have increased considerably.

The Rev. Mr. Allington favoured me with the account of Swinhop.

Births and burials in 10 years, from

	<i>Births.</i>	<i>Burials.</i>
1704, 1713	9	6
Ditto in 10 years, from 1714 to 1723	10	8
Ditto in 10 years, from 1724 to 1733	9	13
Ditto from 1734 to 1743	17	7
Ditto from 1744 to 1753	10	3
Ditto from 1754 to 1763	12	9
Ditto from 1764 to 1773	15	5
Ditto from 1774 to 1783	13	0
Ditto from 1784 to 1793	23	6

Population seems here to have been almost on a regular increase, but especially for the last thirty years. There are some circumstances in the statistical progress of this parish that are curious.

Account of the estate of Swinhop in 1728, by Mr. Amcotts of Harrington, written to Mr. Allington's uncle.

“ Mr. Field the tenant makes as follows :

	£.	s.	d.
“ Lets off to cottagers about, per an. -	15	0	0
“ Sold 100 qrs. of oats at 13s. -	65	0	0
“ Sold about 70 qrs. of barley at 24s. -	84	0	0
“ N. B. Corn gives a high price.			
“ Wool, about 7 to the tod, at 14s. about 60 tod	42	0	0
“ N. B. Wool very low, and they have great losses in their sheep through the poor keeping.			
“ Three-shear wethers, sold 40s. -	25	0	0
“ Ten oxen sold - -	40	0	0
“ Swine, horses, drape ewes, and old cows, raised about - -	32	0	0
	<hr/>		
	303	0	0
	<hr/>		

“ I find he pays Mr. Remington £24. tithe of the land he occupies, which is 6s. in the pound, for his rent is but £80. as he lets to cottagers £15.

“ His outgoings,	£.	s.	d.
“ Rent -	95	0	0
“ Tithe - -	24	0	0
“ Town charges about	4	0	0

“ Servants wages, labour, wear and tear, repairs, I cannot judge of.

“ He keeps two draughts, and adds one in spring for the sowing time ; generally ploughs for oats one hundred acres, and for barley sixty. Gathers two qrs. from each acre, and sows half a quarter on each. He lives very carefully and providently ; keeps little company, and bears a good character, as a justice, for not promoting business. Orford is on the west of Swinhop, where Lord



William Poulette's tenant sows turnips, and has after them good barley."

Mr. Allington remarks on this account, that the quantity under gorse must have been very considerable ; and from no mention being made of it among the products, it is probable that nothing was made of it. Also, that bad as it thus appears to have been in 1728, he has reason to conclude, from the very great marl pits on the estate, and which are very ancient, that it was once better cultivated.

By a survey of the estate in the latter part of the reign of Queen Elizabeth, it appears that the meadows, 47 acres, were divided into four pieces ; and 280 acres of pasture were 25 pieces, some so small as one rood and five perches.

This estate, which in 1728 let at £95. cottages included, would now let at 12s. an acre round, tithe free, which, for sixteen hundred acres, the measure then, is £960. supposing the inclosure finished, which Mr. Allington has a power of doing, and buildings for two farms raised.

It let in 1762 at £230. for 21 years, by Mr. Allington's father. In 1779, for £300. for 14 years, sinking four years of the former lease ; this ran on till 1793, when the present Mr. Allington took it,

*Prices at Swinhop.*

1752. Wheat, 2 qrs. and a sack, £4. ; 32s. a qr.

1753. A fat hog 3s. 6d. a stone.

Sainfoin 20s. a quarter.

Three pair of six year old oxen, £14. 15s. a pair.

A pair of five year old beasts, and two heifers two year old, £21. 5s.

Eighty wethers at Castor, 12s. 9d. each.

Forty old ewes, at 6s. each

1753. Twenty-seven culled wethers, £14. 3s. 6d.  
 Wool 15s. 6d. a tod, and locks at 3s.  
 Slaughter of rabbits, sold at 7s. 6d. a dozen.  
 Bought 23 two-shear wethers at 10s. 9d. in May.  
     21 one-sheared ditto, at 10s. 3d. in May.  
 Five gelt ewes, at 8s. 6d. in June.  
 Ten hog sheep, at 9s.  
 Bought a sow and nine pigs, £3. 5s.  
 Bought two tups, £4. 4s.  
 Sold a cow and calf, £4. 7s. 6d.  
 Wintering fourteen steers, at 8d. a head per week.  
 1754. Fat hog 3s. 6d. a stone.  
 1755. Oats 12s. a quarter.  
 Pirky wheat 23s. a quarter.  
 1758. Two six year old beasts bought at Castor fair,  
     £12. 14s.  
 Three yearling calves bought at ditto, at £2. 2s.  
     each.  
 Four Yorkshire steers bought at ditto, £15.  
 One four year old steer, ditto, £4. 4s.  
 A Welch bull, £2s. 15s.  
 Twelve Welch heifers £2. 17s. each, 2 year old.  
 Thrashing *bullimon*, 7d. a quarter.  
 ——— barley, 1s. a quarter.

The progress of things in this parish seems to have been a picture of the kingdom at large. In the chapter of sheep, it appears that Mr. Allington keeps on this farm 1460 sheep, which produce above £1000. In 1728 there were 420 on it, which yielded from £60. to £70.; it was then nearly all sheep-walk, but now a scene of cultivation!!! What a change! Our politicians wonder at the ideas of those days, that England could bear no greater national debt than 100 millions. Proportionably to this parish, she could better bear a thousand millions now,

than fifty in 1728. For want of searching in old family papers, we know little of the miserable state of this kingdom sixty or seventy years ago, a few counties near London excepted : the great flight has been taken in the last forty years, and much, very much, has been done in thirty, since the period of my tours ; and curious it is to me now to travel, and see the marvellous change.

STATE OF POPULATION at *Horncastle in Lincolnshire*, for  
the last Fifty Years; taken from the Parish Register, be-  
ginning January 1st, 1740, and ending December 31st,  
1789, inclusive

Anno Domini.	Births	Deaths	Incr. by Births	Diminu- tion by Deaths
Jan. 1st. 1740, to Dec. 31st. incl.	52	43	9	
1741 - - -	39	49	—	10
1742 - - -	41	32	9	
1743 - - -	49	33	16	
1744 - - -	41	24	17	
1745 - - -	46	34	12	
1746 - - -	37	33	4	
1747 - - -	50	58	—	8
1748 - - -	50	49	1	
1749 - - -	39	35	4	
1750 - - -	44	21	23	
1751 - - -	38	13	25	
1752 - - -	42	36	6	
1753 - - -	51	40	11	
1754 - - -	43	32	11	
1755 - - -	50	34	16	
1756 - - -	50	32	18	
1757 - - -	40	21	19	
1758 - - -	41	22	19	
1759 - - -	39	43	—	4
1760 - - -	48	58	—	10
1761 - - -	54	69	—	15
1762 - - -	48	34	14	
1763 - - -	58	40	18	
1764 - - -	44	30	14	
1765 - - -	62	29	33	
1766 - - -	56	53	3	
1767 - - -	51	36	15	
1768 - - -	44	49	—	5
1769 - - -	40	47	—	7
1770 - - -	59	21	38	
1771 - - -	43	35	8	

Anno Domini	Births	Deaths	Incr. by Births	Diminution by Deaths
Jan. 1st. 1772 to Dec. 31st. incl.	42	44	—	2
1773 - - -	47	47	21	
1774 - - -	58	31		
1775 - - -	42	44	—	2
1776 - - -	62	38	24	
1777 - - -	59	47	12	
1778 - - -	60	40	20	
1779 - - -	48	45	3	
1780 - - -	59	52	7	
1781 - - -	51	47	4	
1782 - - -	55	34	21	
1783 - - -	64	60	4	
1784 - - -	55	64	—	9
1785 - - -	55	47	8	
1786 - - -	61	47	14	
1787 - - -	54	44	10	
1788 - - -	72	33	39	
1789 - - -	83	39	44	
1790 - - -	66	53	13	

The former Statement divided into periods of five years.

1740 to 1744 incl.	222	181	41
1745 1749 ———	222	209	13
1750 1754 ———	218	142	76
1755 1759 ———	220	152	68
1760 1764 ———	252	231	21
1765 1769 ———	253	214	39
1770 1774 ———	249	184	65
1775 1779 ———	271	214	57
1780 1784 ———	284	257	27
1785 1789 ———	325	210	115

From a MS. state of the diocese of Lincoln, taken in the year 1565, it appears that Horncastle then contained 164 families.

Burton parish.

<i>Years.</i>		<i>Baptisms.</i>		<i>Burials.</i>
1776	-	14	-	7
77	-	15	-	6
78	-	13	-	6
79	-	20	-	6
80	-	7	-	8
81	-	9	-	3
82	-	16	-	8
83	-	14	-	10
84	-	16	-	4
85	-	11	-	6
		<hr/>		<hr/>
		135		64
		64		

Increase 71

1787	-	14	-	12
88	-	14	-	9
89	-	13	-	4
90	-	13	-	6
91	-	13	-	4
92	-	13	-	7
93	-	15	-	4
94	-	9	-	7
95	-	14	-	7
96	-	11	-	6
		<hr/>		<hr/>
		129		64
		64		

Increase 65

In Freiston.

<i>Years.</i>		<i>Births.</i>		<i>Deaths.</i>
1775	-	22	-	17
76	-	21	-	20
77	-	20	-	18
78	-	25	-	19
79	-	21	-	26
80	-	15	-	56
81	-	23	-	26
82	-	18	-	23
83	-	23	-	12
84	-	24	-	30
85	-	26	-	18
		<hr/>		
		238		265
				238
				<hr/>
		Decrease		27
				<hr/>
1786	-	27	-	16
87	-	23	-	28
88	-	32	-	23
89	-	18	-	29
90	-	23	-	23
91	-	19	-	13
92	-	17	-	9
93	-	20	-	23
94	-	19	-	16
95	-	23	-	23
96	-	20	-	23
		<hr/>		
		241		226
		226		
		<hr/>		
Increase		15		
		<hr/>		

In this parish there are quite as many houses now, as there were thirty years ago ; several new ones have been erected in the last five years ; some have been built from an idea of the common being to be inclosed, on the sites of old ones that had gone to decay ; this, with a view of claiming their common-rights. Farms remain as they were ; there is not one in the parish of more than 280 acres, though there are 3094 acres in the parish ; and the next in size does not exceed 140. Poor's-rates in 1796 were £360. of which about £60. the navy ; besides militia. Rent about £3000. Population remains nearly stagnant, though the difference in the burials more than balances that of the births.



## CHAPTER XVI.

## OBSTACLES.

A VERY singular nuisance in Deeping Fen, of late, has been mice ; which have multiplied to such a degree in the pastures as almost to starve the sheep. The land is alive with them. Mr. Greaves has, in a field of a few acres, killed eight or ten by his horse treading on them.

In the hundred of Skirbeck, the chief obstacle is the height of tithes ; and, as there thought, the unwillingness of landlords permitting grass land to be ploughed up, which would pay much more under the plough than in grazing. In all the parishes that have been inclosed here, the ancient lands have been exonerated of tithe, as well as the new inclosure, which has removed the former in many instances.

About Revesby, &c. a material obstacle also (in the opinion of my informant), is the unwillingness of landlords to permit the farmers to plough grass land ; but which is in part removing by their now permitting parts to be ploughed for turnips and seeds, to support the sheep in winter, which formerly used to be done by mowing the best grass land for winter food.

But the greatest obstacle I know in the county is the general practice of giving no leases.

## CHAPTER XVII.

## MISCELLANEOUS.

SECT. I.—*Societies.*

FEBRUARY 29, 1796, there was established at Folkingham a society, very properly called the Lincolnshire Agricultural Society, being the first in the county. The purport seems to be, to collect the practical farmers together, and to turn the conversation upon topics well adapted to promote improvements:—this produced a disposition to turn desultory discourse into some more formal attempt to make a regular subject the object of disquisition, so that after a few meetings, questions of utility were regularly proposed for discussion, and resolutions come to upon such; this being but the infancy of the institution, it is not to be expected that any great progress has been made; however, the following circumstances will shew that this infant society have got into a very good train, and that in their future progress the greatest things may be expected from them. viz.

Query I. Whether it is right to reduce lands from their original state, viz. from curves into straight lines, or let them remain in their original state?

Resolved, by the members present, that reducing such lands to level and straight work is approved.

Query II. After reduced in the manner above mentioned, what sized lands are best adapted to farming to the greatest advantage?

Resolved, that from four to five yards are the best sized lands.

Query III. What is the cause of the halt in sheep, what produces it? Does it originate in the constitution of the animal?

Various opinions were held; but in general determined, that a general neatness in the pastures; and to keep the animal well pared in the spring months, are preventives.

Query IV. What is the best method of producing food for sheep in the spring, after turnips are expended?

Resolved, as the general opinion, that tares are the properest, unless land be in a high state of cultivation, so as to admit sowing rye on light soils; which in such case might be fed in the spring, and afterwards left for a crop.

Query V. What is the best method of insuring a crop of turnips? what manure best to lay on? whether straw manure, made in the yard previous to sowing, or that carted out the season before, termed spit manure.

Resolved, that straw manure is proper for heavy soils, and spit manure for light ones; (but not generally determined;) and to scale them in previous to sowing, and afterwards give them a second ploughing; or otherwise lay on the manure, and plough in, and sow immediately. Recommended by the members now present to try both methods, and report the result of their operations both ways.

Members of the Society,

Thomas Rasor.

Henry Burton.

Stephen Oliver.

John Holderness.

Robert Newcomb.

William Dawson.

John Cragg.

Thomas Harley.

William Wyan.

Edward Maples.

John Newton.

John Sumners.

Henry Hoyte, Secretary.

SECT. 2 — *Weights and Measures.*

“ IN that rude state of society, while all exchange of commodities is by barter, weights and measures are useless ; but as soon as they become necessary, they ought to be sacred. Every departure should be watched with a vigilant eye, and opposed with a vigorous hand. Even in the infancy of commercial intercourse, divers weights and measures have always been found an evil ; but in the present maturity of British commerce, when the same person may have occasion to transact business at a vast variety of distant markets at the same time, an almost equal variety of weights and measures must prove extremely vexatious, and frequently the cause of imposition and loss. As such a diversity in the standards of exchange between man and man, can answer no other purpose than to render the simple, the illiterate, and the unsuspecting, more the dupes of the designing and dishonest than they are by nature ; so it should seem, that a complete correction of the evil complained of, is a debt which government owes to the country. With respect to that inequality which most affects the interests of agriculture, meaning, in the measure of corn, I hear it said, “ You have statutes ; let them be executed.”—It may be answered, that at the time those statutes were enacted, it is probable the people did not properly interest themselves in the matter ; so that for want of a self-enforcing principle in the statutes themselves, and of a disposition in the people to

second the efforts of the legislature, the excellent provisions in those laws never, in fact, became generally established; and were, indeed, to the generality of the people, utterly unknown. The people, therefore, of this generation are not to blame; and in many instances where the public spirit, and zeal of individuals, have caused them to exert themselves in the business, it has been found impossible, without the renewed exertions of the legislature; to root out old custom, and combat the powers of interested opposition. But as the people have manifested, that their attention is now awake to this necessary reform, and have in various parts of the kingdom shewn their disposition to second the legislature, now is the opportunity for rendering to the country this important service. To say that the legislature cannot effectually remove the evil, by an amendment of the law, would be a strange position. Perhaps the magnitude of the present penalties may prevent prosecutions. Perhaps applying the penalties to some *parochial* purpose, might have an admirable effect. I should recommend, that in every parish, he who should produce to the justices at quarter sessions, all his bushels and *other measures*, register their dimensions (agreeing with the standard), and declare upon oath that he would neither buy nor sell by any other measure than such as the law prescribed; nor make any bargains whatever, wherein any allowances should be made, either in money or in corn,\* flour, &c.; for deliveries by measures not according to the standard, *should be exempt from all parochial assessments whatever, until three-fourths, at least, of the inhabitants had*

\* Here it would be necessary to guard against all evasions in deliveries, by the *quarter, loom, last, &c.* by declaring the Winchester bushel to be the *root* of all measures, whether larger or smaller than a bushel, and to give a table of the same, constituting a *legal standard* throughout the whole scale, from the *pin* to the *last*.

*in like manner, so registered their measures, and taken the like oath; and that such inhabitants, or occupiers of land, in the parish as should neglect such registry, and such oath, should be liable to make good all deficiencies, occasioned by such exoneration of those who complied with the law; and further, that all persons dealing in corn, &c. not so registering their bushels, and other measures, should, by the clerk of the peace, be reported to the collectors of taxes, whose duty it should be, to levy on them double taxes on houses and windows." By J. Cartwright, Esq.*

### SECT. 3.—Religion.

THE prosperity of agriculture, as of every thing else, depending on the moral and religious habits of the people, too much attention cannot be paid to those circumstances which influence it. I found upon the Wolds a neglect of public worship, which ought to receive animadversion. It is not uncommon in many parishes to have divine service performed but once in three weeks or a month; in others, once a fortnight. Where this is the case, such a mischievous defect generates inattention and carelessness whether or not it is performed at all; and I heard a famous story in the county, the jet of which was postponing it from four to five weeks, because the clerk (a woman) had set her goose in the pulpit, and she would not allow the parson (ready enough doubtless to comply) to disturb the animal. What right has the landlord to expect an honest farmer, and what farmer to expect an honest labourer, in a country where the worship of the Almighty is thus neglected? The livings are miserably poor: does not this shew the necessity of the clergy being well provided for? If the stipends are so small, that four or five parishes can only support one clergyman, such must be

the consequence ; and the people, abandoned to Sundays of mere idleness, without religious instruction, necessarily resort to alehouses, and become depraved and licentious. National prosperity depends on the industry of the common people ; industry on good morals ; and as good morals amongst the poor are nursed only by the Gospel being preached to them, it must be clear to every considerate mind, that the most important of the national interests must suffer by a neglect of public worship. Nothing tends more strongly (as Addison has well remarked) to civilize the lower classes, than the institution of a Sabbath ; when their labours cease, and dressed in their best attire, they assemble at the parish church to worship the common Father of all. The omission of this motive, and opportunity of appearing clean, and mixed in a general assembly of the parish, entails dirt, slovenliness, and rags ; drunkenness, idleness, and consequent profligacy, and would, if continued, tend more strongly than any other circumstance to render them savages. I know nothing better calculated to fill a country with barbarians ready for any mischief, than extensive commons, and divine service only once a month. I am not a judge of the means of remedying such an evil ; but the Right Rev. Prelate, who presides ecclesiastically in this province, and whose abilities are well known, would, without doubt, have done it, had he possessed the power.

As I have thus the occasion to touch upon the subject of religion, I shall make one other remark. Labour is so extremely high in the fen part of this county, that I have many times heard it there regretted, that they could not work in harvest on Sundays in ticklish seasons ; my opinion is so much the reverse, and would be the same if I farmed in the county, that I must add one word on this pernicious idea, which seems to take for granted, that

saving a little corn is of more value to the farmer, than so much of a religious temper of mind amongst the poor, as depends on keeping holy the Sabbath day; and which, in fact, is the whole of the religion that is found amongst most of the poor. The Gospel is their *peculiar* privilege; and I know not a more abominable proposition than to attempt to bribe them to the neglect of it. People who think and speak thus carelessly, can have little notion of the providence of the Almighty, when they imagine the possibility of thriving by economy in corn purchased at the expence of His worship, whose bounty is the origin of all crops, and all possessions. *Would they not be as well employed, as in drinking at an alehouse?* I do not know that. They may be tempted of a Sunday to transgress;—but it is not upon *design*, upon *system*; they are not hired by their masters to do it; they are not led astray there by superior ranks. But why is a bad habit on one part of the Lord's day to become a reason for misapplying the rest of it? If a labourer is tempted to the alehouse on the evening, can that be a reason for inducing him to neglect the worship of God in the morning? Can any accidental breaches of the Sabbath be a motive for lessening his respect for that day of rest? And how is he to respect it, if he sees his betters abusing it? To the scandal of the kingdom, of the legislature, and the execution of the laws, therefore to the scandal of the magistracy, we see carriers' waggons, and stage-coaches crowding the roads on Sunday: add to this, the fields full of workmen; and where soon would divine worship be found? Do French principles make so slow a progress, that you should lend them such helping hands? No,—far be it from any honest farmer to regret this day of sacred rest to his servants, his labourers, and his cattle; nor ever forget, that let him plough, and sow, and water, it is



**440      AGRICULTURAL SURVEY, &c.**

**ANOTHER** who giveth the increase ; that great, and for ever to be adored Being, to whom we owe our **ALL**, who gives the rich the enjoyment of their wealth, and the poor and miserable the consolation of the **SABBATH**.\*

\* I believe in harvest as much is, in many cases, gained by resting on a Sunday, as in others is lost by it. In a ticklish season, after some days of rain, the common error is carrying too soon ; at such times being forced to lose a day, is, in fact, a gain.

## A P P E N D I X.

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### *Manufactures.*

**U****N****D****E****R** this head I should at the proper place have noticed the schools of industry instituted by the Rev. Mr. Bowyer, and mentioned with so much just applause by my friend Mr. Ruggles, in his treatise on the poor. I made many inquiries concerning the present state of the spinning schools; and it was with much pain I found that in general they were discontinued; and that the plan which had been carried to a certain extent, was considered as having nearly failed; the reason given to me was the bankruptcy of a hot-presser from Yorkshire, by whom £300. or £400. was lost of the subscription, or other money, raised for establishing those institutions on a more extended scale of manufacture; but that success attended the plan while confined merely to spinning. The removal of Mr. Bowyer to Durham probably contributed. These schools subsist in a very flourishing state in Rutlandshire.

### *Sheep.*

The wether of 67 lb. a quarter, mentioned at page 306, was weighed alive. The progress; this sheep which was killed the 13th Oct. 1791, having been sold (to be shewn) for 50 guineas, weighed alive the

		St.	lb.
18th Feb. 1790	-	19	2
April 16	-	19	9
May 20	-	20	9
June 5	-	21	1
July 16	-	20	7





Sept. 9, 1790	-	21	10
Nov. 9	-	23	3
Dec. 6	-	23	10
Oct. 13, 1791	-	26	0

Girt 6 feet 6 inches.

Length 5 feet.

If 26 stone gives 268 lb. (67 lb. per qr.) what will 20 give?

Answer  $14\frac{3}{4}$ .

### *Sainfoine.*

The Rev. Mr. Gilby, at Winterton, sowed it in 1791, with barley after good turnips; 4 bush. of seed per acre. It succeeded well; the first crop upon 11 acres did not produce more than 2 loads, for there were many sow thistles. The second year it gave  $1\frac{1}{2}$  tons an acre. The third year 3 tons an acre. The fourth year, the same. The fifth good, but not equal. There is not the least sign of decay. The after-grass eaten by beasts; never by sheep. In the same lordship some has lasted good 15 years. It is remarkable, and deserves notice by the cultivators of this plant, that in one part of the abovementioned field of 11 acres, two years before the turnips, there had been some ray-grass, and in the sainfoine to this day. The sainfoine is to an inch rather worse, fewer roots, and not so strong. Mr. Gilby has no doubt of the effect.

### *Covering Corn Stacks.*

“ Dear Sir,

“ A scarcity of time will not allow me to make you at present so complete a set of Drawings for explaining my contrivance for covering corn stacks as I could have wished; but together with the Drawings I gave you, I flatter myself a moderate degree of attention will enable any one to understand it.

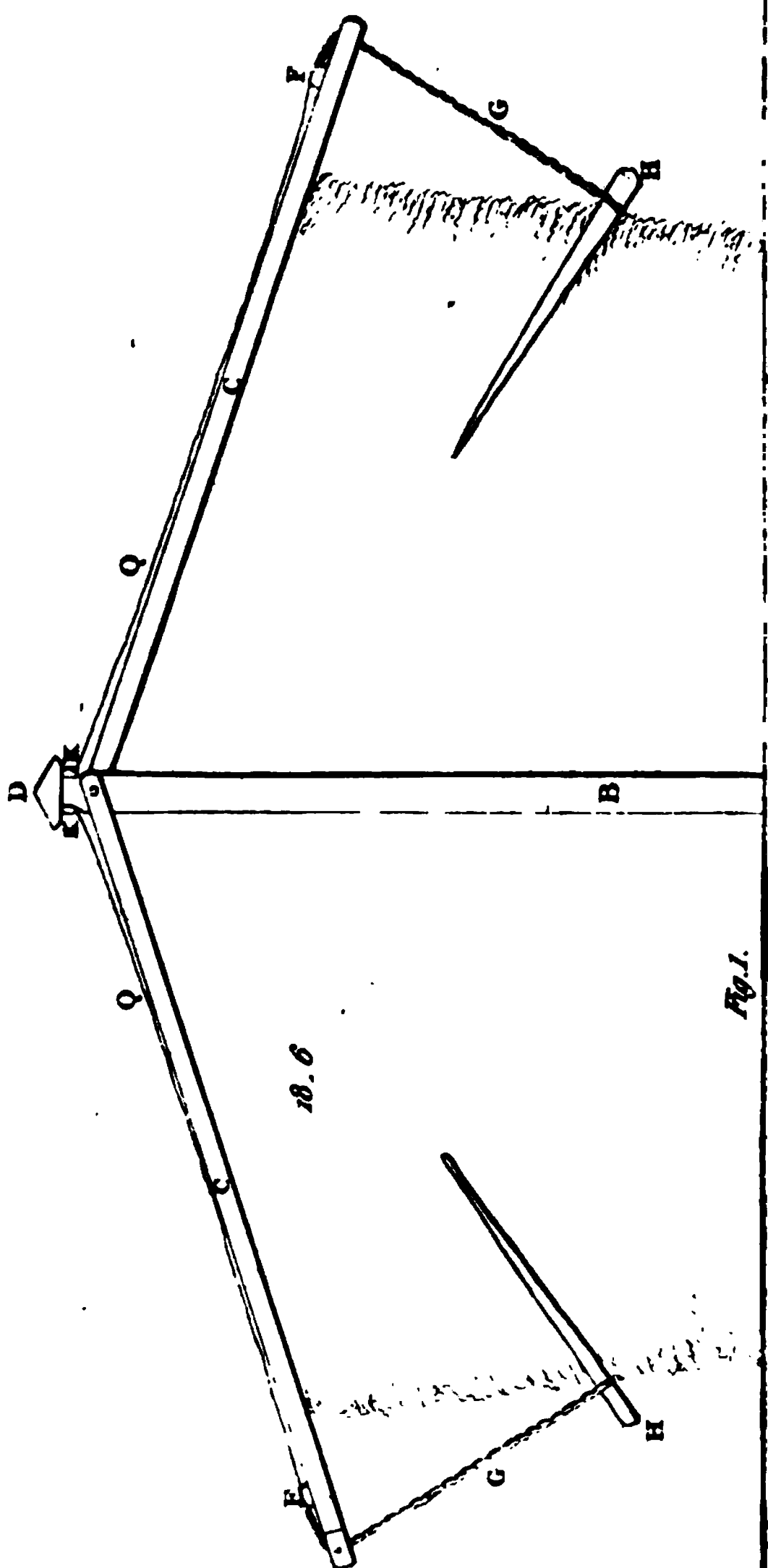
JOHN CARTWRIGHT.”

Fig. I.

*An End View, or more properly, a Section of a Stack, secured under an oiled Canvas Covering.*

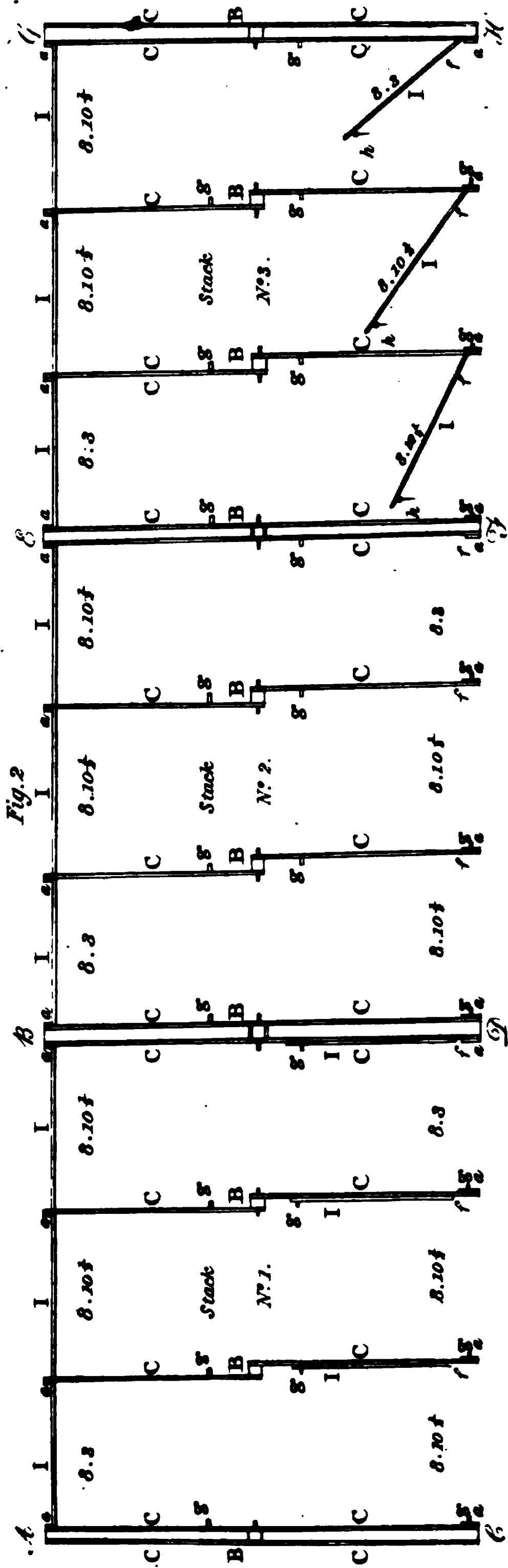
A	an oak post, of which 4 feet is in the	ft. in.
ground	- - - - -	7 0











B a fir post, fastened to the oak post with two bolts, its bottom even with the surface of the ground - - 6 × 6 — 18 6

C C moveable spars, hanging on pins fixed in the post - - 4 × 1½ — 12 0

D a fixed roof, for covering an interval between the two canvasses, which interval is left to carry off the damp.

KK sections of the upper rods, to which the canvasses are nailed. These rods are bolted to the posts, but can be taken down at pleasure - - 4 × 2 — 26 11

FF sections of the lower rods, to which the bottom edges of the canvasses are nailed - - 4 × 2 — 26 11

G G stretching cords; fastened to the lower rods F; and which pass through a dead sheave towards the end of the spar, (see fig. 7.) By these cords the canvasses are held tight down, being fastened to

H H stakes which are run into the stack directly under each spar. To the heads of these stakes the cords are brought down, and there well fastened.

Stack, wide at the base from *c* to *d'* - 14 6

Ditto, the eaves, from *a* to *a* - 18 6

Ditto, high at the eaves, from *a* to *b* - 14 6

Q Q the two canvasses extended, being deep 11 feet, and long - 27 3

Fig. II.

Exhibits a plan, on which is represented the fir posts; the spars, single and double; and the connecting rails: but omitting the oak or ground posts; the canvas rods; and the roof.

As this plan is adapted to a long stack of three joints, or smaller stacks, it shews where you are to place double spars, viz. at the beginning and the ending of every joint invariably,

(the intermediate spaces being occupied by single spars), which double spars are constructed on the principle of spouts.

To every joint, 2 canvasses are required ; one for each side of the stack ; which canvasses must all be of the same dimensions.

As the posts keep the upper rods 4 inches asunder, as may be seen in fig. 5, that interval forms a vent for the damps of the stack ; but the interval is defended from rain by the roof D, and the damps escape sideways between the upper canvas rod and the roof.

On the same principle as here exhibited, a stack may consist of any number of joints, less or more than three, at pleasure.

N. B. The span of the spars, when in their position for covering a stack, will not exceed 22 feet 6 inches ; whereas in this plan (in which they are represented as if horizontally extended), the span is nearly 24 feet.

	I.	I.	Ft.	In.
BBB, &c. are the posts, 9 feet asunder from centre to centre	-	6 × 6	— 18	6 long
CCC, &c. spars	-	4 × 1½	— 12	0
CCCC, &c. double spars, or spouts, of which the sides are	-	4 × 1	— 12	0
The bottoms	-	6 × 1	— 11	6
The oblique lining boards	-			¼

See fig. 8.

aaa, &c. cheeks, making lodgments for the connecting rails, and having in them dead sheaves ; through which pass the stretching cords G (see fig. 1. and 7.)

	-	4 × 1½	— 0	6
III, &c. connecting rails, some		4 × 1	— 8	10½
Others	-	4 × 1	— 8	3

In joint No. 1, on the side A B, the connecting rails are represented, as finally placed for steadying the spars ; but on the side C D, they are turned up and lying against the spars, to which they are attached by hinges at f. When so turned up for being stowed away, they are fastened by means of a staple

*g*, fixed in the spar, and long enough to pass through an aperture in the rail, and receive the point of a hook *b*, which is fastened to the rail itself by another staple, as seen in joint No. 3 of this plan ; and upon a larger scale in fig. 3.

When these rails are let down, and lodged against the cheeks at right angles with the spars, as on the side *A B*, then the hook *b* enters a corresponding staple fixed in the cheek to receive it. See fig. 3.

By means of these connecting rails the spars are kept steady, parallel to each other, and vertical, forming air-vents from the eaves to the ridge of the stack on each side of every spar.

In joint No. 2, on the side *D F*, the connecting rails are omitted, in order to shew more distinctly the cheeks, *a*, with their staples, *g*.

In joint No. 3, on the side *F H*, the connecting rails, turning on their hinges, *f*, and furnished with their hooks, are seen in an intermediate position, between their two different situations, when laid by, and when in use.

### Fig. III.

*C* a spar, with its own connecting rail *I*, attached to it by the hinge *f*.

*a* Its cheek pierced with the hole through which is to pass the stretching cord *G*, (see fig. 1. and 7.)

*I 2* The other connecting rail, in its proper lodgment for use, and fastened by its hook *b*.

### Fig. IV.

Plan of a post *B*, 6 inches square, with its round pin *O*, of 1 inch diameter, and 12 inches long ; and shewing the manner in which the double spars, or spouts, *C C* and *C C*, must be fixed where they are required. For fixing these spouts, the pin *O* must be loose enough to drive easily in and out, and require no cotter. Where only single spars are to hang on the pins, there must be cotters, as expressed in fig. 5. and 6. ; and the pins are then to be fast in the posts. In these cases the cotters are to act as wedges against the spars, for keeping them perfectly vertical and steady.

Fig. V.—(same scale.)

B a post and its accompaniments, as seen when you are opposite the *end* of the stack. See fig. 1.

It is now seen, that the post is somewhat reduced in substance at the sides, where the upper rods K K are fixed; whereby the open interval along the ridge of the stack, between post and post, is reduced to the width of 4 inches; whereby it is better protected by the roof D; and the end lining piece *r s*, within the spout, gets better placed for keeping out rain. The top of the post terminates at *i*.

K K sections of the upper rods. And on the left hand side, is also seen

Q the canvas sheet or covering, which at a short distance from the rod will, when stretched out, touch and rest upon

C the spar. The dotted lines on this spar, shew the positions of the bottom, and of the end lining of a double spar.

L a board nailed across the head of the post, for carrying

M M the boards which form the fixed roof D.

O the pin on which the spar hangs.

Fig. VI.—(same scale.)

B a post and its accompaniments, as seen when you are opposite the *side* of the stack.

K K two upper rods bolted to the post, but not meeting by 1 inch.

L L the cross boards, to which

M the roof board is nailed.

O the pin with wedge cotters.

Fig. VII.

Exhibits a section of part of the stack, with C, the lower end of the spar, of which the upper end was shewn in fig. 5. It is  $4 \times 1\frac{1}{2}$  inches, and 12 feet long in the whole, as before expressed; *a a a a*, is the cheek, 6 inches long, and  $1\frac{1}{2}$  thick. *k*, shews the manner of cutting the dead sheave in the cheek before it is nailed on.

**G** the stretching cord.

**H** the stake.

**F** the lower rod, to which is nailed the bottom edge of **Q**, the canvas, which, when stretched out, will not touch the spar in the part immediately above that rail.

**I** Is the place where the connecting rail finds its lodgment against the square end of the cheek, and abutting against the spar **C**.

**m** Is the crown of the staple, for receiving the hook of the connecting rail.

**n** A knot, for stopping the stretching cord when drawn tight; and by which, where the canvas is to be rolled up, the cord may be drawn out, that it may not injure the rolled canvas.

Perhaps experience may shew, that weights at the ends of the stretching cords, may answer better than stakes; by keeping the canvas always equally stretched, whether the weather be wet or dry.

### Fig. VIII.

Is a section of a double spar, or spout, marked with its dimensions.—It is here seen, how all the edges of the canvasses are secured by small cords sewed to the canvas, and fastened to staples in the bottom of the spout; so that no wet can get to the stack either at the ends or the joinings; nor can the wind find an entrance.

For a farther explanation respecting these spouts, see the subjoined instructions for building and covering a stack, supposed to consist of more joints than one, each joint being covered with a distinct canvas.

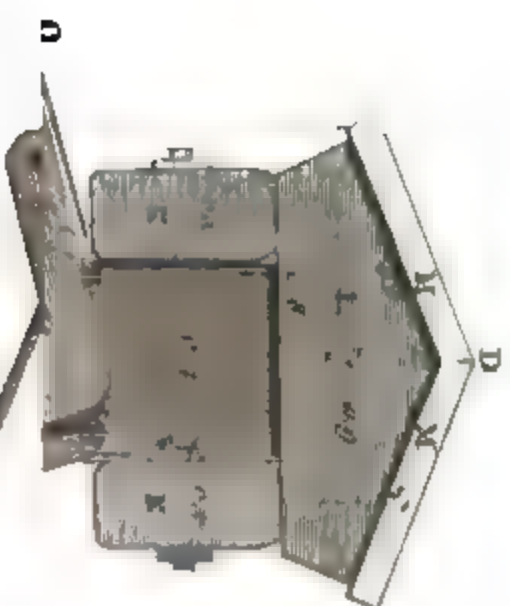
### INSTRUCTIONS.

On this occasion it is necessary to distinguish the posts into *end* posts and *joint* posts; the former being those only which stand at the extreme ends of the whole stack, whatever be the number of joints; and the latter, those posts which stand at the junction of two joints of corn.

1. In building the first joint of corn, let the ends of the bottom sheaves be laid even with the *inside* face of the *end* post ; and as you ascend, project the ends of the sheaves rather outwards, but very little at a time, so that at the top of the stack they shall not project above 5 or 6 inches beyond the *outside* face of this *end* post. Thus you will obtain a firm lodgment for the double spar, or spout, which belongs to this post (see fig. 2.) When the stack is finished, you cut off all the ends of the straw which project beyond the outer side of the spout, and by trimming the whole end of the stack with the cutting knife, the upper part will have a slight projection, inclining gradually outwards from bottom to top, so that no wet can lodge. The lower end of the end-spout being well secured by a cord and stake, neither rain nor wind can make any impression at the extremity of the stack.

2. At the other end of this joint of corn, a different mode is to be observed, because of the union at this joint with the succeeding joint. Here let all the sheaves project about an inch or two beyond that which, while building this joint, is the *outer* face of the joint post, and carry up this end of the joint as perpendicularly as possible. Thus again you get a firm lodgment for the spout which belongs to this post. Here it would be a waste of time to trim with the cutting knife.

3. When your joint or stack is built to your dimensions, level the eaves as neatly as you can ; hang on your spars, extend and hook fast your connecting rails ; having your covering canvasses tightly rolled upon the lower rods, raise them to their places, and bolt the upper rods to the posts ; then extend the canvasses, insert the stretching cords through the lower rods, reeve them through the dead sheaves in the checks of the spars, and fasten them down to the stakes, which should by this time be firmly thrust into the stack. Secure the edges of the canvas to the staples in the two spouts, and then your stack is perfectly safe. These operations, when the servants were used to them, could scarcely require half an hour. But as it is to be recollected, that the distance between spar and spar will be about 9 feet, perhaps it may be advisable to have







one or two intermediate stretching cords, which might be tightened to the connecting rail.

The cutting knife need not be used at the end or sides of the stack till a time of leisure, when the stretching cords might be tightened, and the stack left for the winter.

N. B. If the weather be precarious the canvas rods might be bolted on, prior to building the stack, and the canvasses rolled tight upon the lower rods might be suspended to the fixed roof, in readiness for securing the stack at a moment's warning, during the progress of building it.

P. S. Whenever a joint of corn is taken in, it seems advisable not to trust the canvasses to mere rolling up, and suspending to their proper posts, because of mischievous people, or of such as are ignorant and inquisitive, who might damage them. But it is recommended to every one adopting this invention, to appropriate a secure place for depositing each pair of canvasses, with the apparatus belonging to them; and to have all the spars properly marked and numbered for going to the proper places without error or confusion.

4. In building a second joint of corn to unite with the first, at the end of the junction, let the but-ends of the sheaves be forcibly thrust against the but-ends of the former joint. At the other end, accordingly as it is to be a mere joining with a subsequent joint, or a final end of the stack, the same directions as already given in either of those cases respectively, is again to be observed.

It is presumed that, from a stack thus covered, all damp must find a vent upwards, and escape at the ridge, as the vertical position of the spars must form as it were a flue on each side of every spar, from the eaves upwards. Supposing hay to be thus covered, and that the damp by these means should not at some particular times be carried off with sufficient velocity, the canvas could be occasionally rolled up in dry weather, and secured again before night; but it remains a question, whether it could be necessary at any time, unless the hay were stacked in very bad condition.

If a side wind should be found to enter at the eaves, and

G g

agitate the canvas, an insertion of a little loose straw would cure that inconvenience.

*Preparing the Canvas.*

EXTRACT of a LETTER to J. CARTWRIGHT from CHARLES GOWER, Esq.

*Edmonton, Sept. 4th, 1797.*

“ Your scheme is certainly practicable in the fullest sense of your expressions, viz *water-proof, supple, free from cracking, or sticking together, and as cheap as may be.* I will just relate to you the mode practised in China for oiling silks, cottons, linens, &c. (which mode is *imitated* here in the materials for umbrellas, but not so closely as to equal the Chinese) and from this relation we may fairly argue by analogy, that a coarser sort of stuff, such as sail-cloth or tilting-cloth, may be manufactured after a similar method.

“ A quantity of *very old* seed oil, linseed oil for instance, is to be put into an iron (not a *copper*) caldron, which must be large enough to contain full twice as much as is put into it, lest it boil over, and ruin the process; a fire is to be kept *briskly* burning under it, with as little flame as possible, till it boils (which will be three or four hours), and when it has boiled long enough to catch fire by the introduction of a red hot poker into it, it is to be permitted to blaze for half an hour at least. At the end of this process it will be tacky, and of a green colour, and is completely rendered a drying varnish, of a supple quality, though somewhat slower in drying than varnishes of other materials.

“ A material secret remains behind as to the application of this varnish, viz. the stuffs, &c. on which it is to be applied are to be previously wetted with water, so as to be thoroughly and equally *damp*, but not a single *drop* of superfluous water adhering (just that difference which laundresses make between wet linen on the lines, and linen again artificially *damped* throughout, called sprinkling and folding, fit for ironing).

“ The stuff may be now payed over with varnish, or wrung out with it, as lineas are done in starch, and this latter mode is preferable, if the quantity of stuff be not too great to prevent it. I saw a silk handkerchief, previously *damped*, dipped into a similar varnish (but made of a more curious and costly oil, viz. nut oil), and afterwards wrung out, which when dry, might be crumpled up in the pocket, and expanded again without crack or injury. Remember! *very old oil* is necessary, because *no* artificial *dryers*, such as umber, red lead, sugar of lead, litharge, &c. &c. are admissible here; for though they hasten the drying, they make the varnish friable and cracky. Now, *very old oil*, like *very old wine* is completely homogeneous, and its component parts are *intimately assimilated*, which raw and newly crushed oils are not, as they contain much *mucilage*, which is *floating* in them, and must be *deposited* ere they be fit for the above purpose.

“ Pray be highly cautious in performing the process, it is so dangerous a one; for in burning the oil, it will blaze full 15 feet perpendicular, and send forth a suffocating stench. Let, therefore, a lid or cover be closely fitted to the pot, and when you want to stop the process and put out the flames, let the cover be put closely on, and coarse cloths, which have been wrung out in water, be placed round the crevices to exclude the air (N. B. If the cloths are not wrung out, and a *single drop of water* should find its way into the *bot oil*, the pot will explode with the noise of a cannon. In short, act thus :

“ Place your caldron in the middle of a field, at a distance from any house; let your fuel be *coke*, which bears the bellows to *brisk* the fire, without raising a *flame*; and let your lid be suspended on a *long pole*, whereby the operator may be able to press it down hard, without injury to himself. All this process I myself have performed on 60 gallons of old oil, at different times (10 gallons at a time) with success.

“ When your cloths are varnished, suspend them on tenter-hooks at their corners, on the beams of an empty barn, free

from dust, with a current of fresh air. Wait **PATIENTLY**, (for weeks if necessary) and you will succeed.

“ The expence of varnishing such a cloth must depend in a great measure on the nature of the stuff to be varnished, for the measurement of the *superficies*, as in common house painting will not do; the cloth is *soaked*, and of course admits varnish through its whole texture. Your linseed oil, in plentiful times, may be had for 4s. per gallon, and the process will reduce it one-fourth at least, which adds to your expence in that proportion, without a word of *fuel* or *workmanship*; but as these *two* are upon 10 gallons at a time, one-tenth of the expence is to be allotted to each gallon.

“ I do not think it would *invite* the mice to eat it, because I know from experience their *aversion* from it; but they will eat through papered canvas in parlours, whence I infer they may perhaps penetrate through this, if *they want an outlet*, for the air soon deprives the varnish of its *smell*.

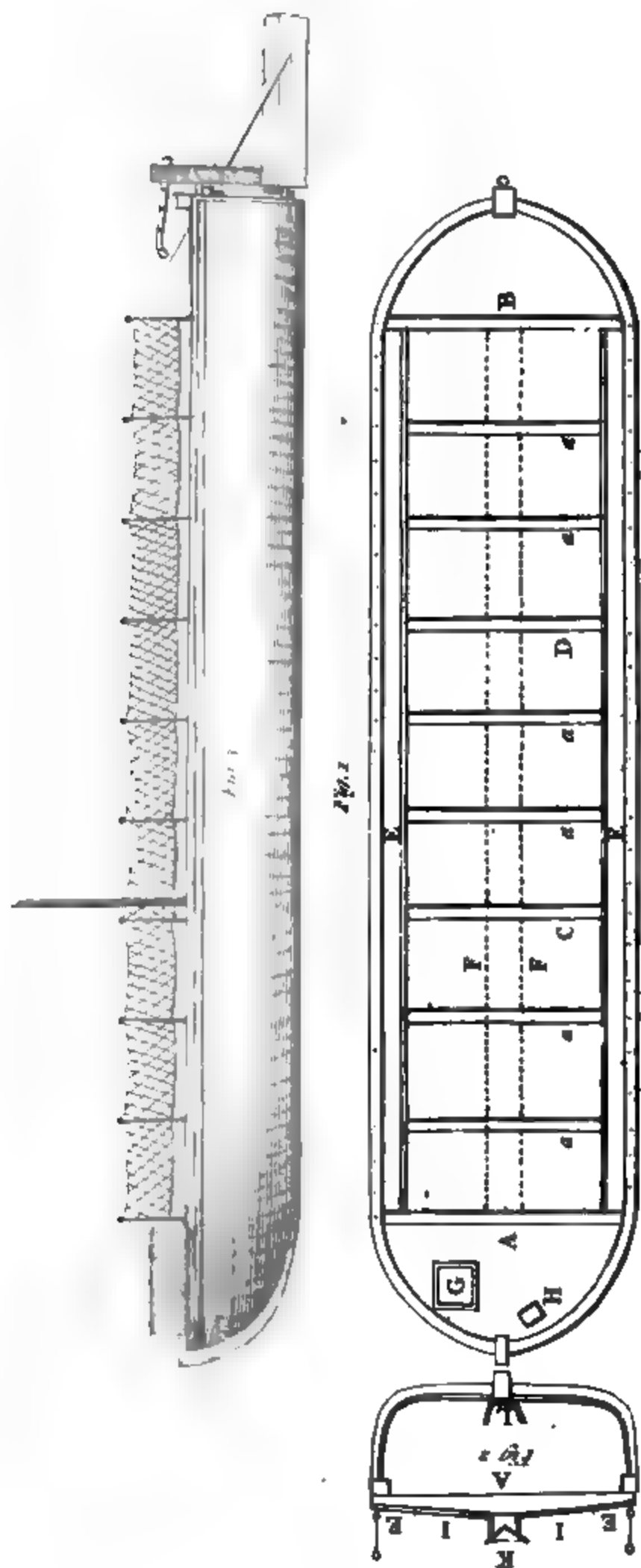
“ The *durability* of the varnish is *great*, for having no friable materials admixed with it, it will not chip off in rolling, as a painted cloth would do; moreover, when the oil is impoverished by wear and tear, in *paint*, the several cracks not only let in wet, &c. but the edges of the *chips* of *paint* act as a knife to cut the fibres of the cloth.”

It is for consideration, and perhaps for the decision of experiment, whether a light canvas or a strong linen would be the cheapest and most durable.

Supposing the covering to be duly taken care of, it should seem to be liable to so little friction, or wear and tear of any kind, as to be likely to last for a great number of years; and if the wood work of the posts, the roof, and the lower ends of the spars and the spouts, as well as the inside of the latter, be well painted, all these articles should seem calculated to last equally long.

If snow should be likely to drift under the sides of the wooden roof, that might be prevented by stuffing in a little





— Plan, & Section of Side View of a Sheep Carriage, adapted to the carriage of live & sheep.

straw ; but if the ridge of the stack was topped up on the first building, with fine straw or stubble, any such stuffing might be unnecessary.

With regard to the comparative expence with that of annually thatching, I am not yet able to ascertain it ; but if the mode practised by Sir James Wright, in covering his hay at Ray House, in Essex, with a combination of many pendent slate frames, so connected together as to constitute a complete roof, can answer, I should incline to think the present mode must answer in a superior degree. For the very great advantage of the artificial slate frames, see his pamphlet.

This system of covering wheat stacks seems to require an adoption of the walled brandrith, or inclosure, such as I use ; which if well coped, is a perfect security against rats, provided no lumber be left against the wall, nor any thing reared against the stack, to serve the vermin as bridge or ladder. The wall below the coping is                      in height.

My experimental purse being for the present drained, I must hope to hear of some other farmer carrying my plan into execution before me.

#### *Boat for conveying Sheep.*

Fearing I may not have leisure for some time, to make a new drawing of my boat, contrived for carrying sheep, I send you the original

#### EXPLANATION.—Fig. 1.

BBB plan of the boat without its hatches ;	ft.	in.
Extreme length                      -                      -	52	0
Extreme width                      -                      -                      -	12	0
From centre of beam A to centre of B                      -	40	0
EE fixed gangways, the outer plank of which, forming the gunwale, is of oak.		

CD fixed beams ; *a a a a a a* moveable beams.

FF, these dotted lines shew the width of the middle hatches, which, when there are sheep in the hold, are to be inlaid, in order to give air below.



G hatchway into the cuddy, which must be raised, as expressed in Fig. 3.

H chimney.

The dots along the gunwale shew the positions of the timbers. Those which receive the shanks of the stanchions should be four inches square at top.

Fig. II.

A oak beam, rising considerably in the middle, which rising may be augmented by a thickening of fir.

EE the fixed gangways.

K a sheep-trough the whole length of the deck, resting upon the beams.

II longitudinal hatches, which, together with the fixed gangways, form a deck for sheep, leaving an opening as wide as the foot of the sheep-trough, for giving air to the sheep below.

L another sheep-trough on the vessel's bottom.

Fig. III.

A side view of the boat with its sheep net, extended between two ropes. The bottom rope passes through eyes in the stanchions, 9 inches from the gunwale; the top rope has a knot at one end; it is passed through a staple or cleat upon the gunwale, then through the upper eyes of all the stanchions, and to the gunwale again at the other end; where it is drawn tight and fastened.

When sheep are carried, cross nets at both ends of the decks will of course be wanted.

When sheep are not the cargo, by leaving at home the stanchions, nets, and troughs, the boat is adapted to any other use.

I am, dear Sir,

Very truly yours,

JOHN CARTWRIGHT.

*Oats.*

Major Cartwright sowed white oats the last week in December, 1797,—last week in January,—and the last week in February, 1798, all on one earth. As far as can judge from examination, the first sown the heaviest, most productive ; and that of January equally superior to February, and February better than the common time of March.

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